

# The Mining Journal,

## RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 1007—VOL. XXIV.]

London, Saturday, December 9, 1854.

[PRICE 6d.

R. JAMES CROFTS, MINING BROKER, No. 1, FINCH LANE, CORNHILL, LONDON, TRANSACTS BUSINESS IN BUYING and SELLING, for immediate cash, DIVIDEND MINES, well selected, are the best of any known investments—paying from 15 to 20 per cent. per annum on dividends. The choice of NON-DIVIDEND MINES for speculation requires careful discrimination.

Mr. CROFTS transacts every description of business connected with the STOCK EXCHANGE at the same rates of commission as charged by the brokers of that establishment.—Bankers: The Commercial Bank of London.

R. JAMES LANE, No. 33, THREADNEEDLE STREET, LONDON, continues to DEAL IN all the LEADING MINES, and is desirous PURCHASING Sortridge Consols, Hington Down, Devon Great Consols, Bedford United, Molland, &c.

R. J. B. BRENCHLEY, 2, PINNER'S COURT, OLD BROAD STREET, BUYS AND SELLS MINING SHARES of every description, for M. & M. M. M. PRICES.

advises that investments can now be effected in the leading Progressive Mines, prices far below their value, and of which investors should not hesitate, at once, to take notice. Parties wishing to know the current prices previous to investing, may rely upon any application meeting with immediate attention.

R. W. LEMON OLIVER, STOCK AND SHAREBROKER, 23, THREADNEEDLE STREET, Business transacted in every description of British and Foreign Mines. (Sword Broker.)

ENGLISH AND FOREIGN STOCK, SHARE, AND MINING OFFICES, No. 3, OLD BROAD STREET, LONDON.

Mr. HENRY SIBLEY (late Mr. Peter Watson) will at all times give the best information; and also BUY and SELL SHARES on the usual commission.

R. GEORGE SPATLEY, TRANSACTS BUSINESS IN ALL BRITISH AND FOREIGN MINES. No. 2, WINCHESTER BUILDINGS, LONDON.

R. E. GOMPERS, MINING SHARE DEALER, 98, GRACECHURCH STREET, LONDON.

R. MICHAEL WILLIAMS BAWDEN, MINE SHARE BROKER AND GENERAL ASSAY MASTER, LISKEARD.

R. FRANCIS RIDGMAN, MINE SHAREBROKER, TAVISTOCK, DEVON.

R. NEWTON SAMUELSON, F.C.S., ASSAYER AND ANALYTICAL CHEMIST, 3, HACKIN'S HEY, LIVERPOOL.

FORE STREET, REDRUTH. R. RICHARD MICHELL'S MINING AND GENERAL COMMISSION AGENCY OFFICES. Mines inspected, and information punctually furnished.

R. W. H. BRUMBY, No. 1, BRIDGE STREET, BATH, will BUY Wheal Zion, Wheal Gill, West Polberro, Castle Dinas, Boscoan, and Great Wheal Alfred.—N.B. Persons offering shares must name the quantity and low price, or no notice can be taken of the offer.

MESSRS. HENWOOD AND CO., MINE AGENTS AND SURVEYORS, LEEDS, OFFER THEIR SERVICES to parties embarking in MINING, and are prepared to give advice on all the leading speculations of the day. Offices of the Penzance Consols, Copper, Zinc, and Lead Mining Company, &c. Telegraph-yard, Leeds.

R. RICHARD HAWKE has instructions to SELL the following SHARES:—2 Wheal Mary Ann (Menheniot), 250; 2 Wheal Trelawny, 250; North Wheal Trelawny, 250 lbs.; 2 Gonakens, 250; 10 Trewetha, 250 lbs.; 10 Wheal Wrey, 250 lbs. WANTED.—One South Caradon, 250 lbs.; 100 Ludeot, 100 lbs.; Tavern Hill, Liskeard, Cornwall.

R. TYACK, MINE BROKER, CAMBORNE, from his situation in the best mining district in the county, together with his daily opportunities of increased experience, is well adapted to GIVE ADVICE to CAPITALISTS disposed to invest in MINING; considering the present time, a good and favourable opportunity to invest. Mines inspected by the most experienced agents.

DIVIDEND MINES.—J. HOLLOW HAS SHARES FOR SALE, at prices to give 20 to 25 per cent. on the outlay. Also, SHARES IN FIRST-CLASS PROGRESSIVE MINES.

J. HOLLOW, being practically connected with mining, OFFERS HIS ADVICE to parties desirous of investing.—Address, Lelant, Hayle, Cornwall.—Dec. 9, 1854.

R. JOSEPH WM. OLIVER, No. 75, OLD BROAD STREET, LONDON, is a BUYER of the following SHARES:—

Sortridge Consols Wheal Edward Wheal Uny North Frances Wh. Kitz (St. Agnes) South Tamar South Molland  
Sortridge & Bediord Wheal Zion East Russell South Towy South Tamar  
West Sortridge Wheal Wrey Great Wh. Badger South Caradon  
Bediord United Wheal Wrey Heanock West Providence  
Great Wheal Hugo Trelawny Alfred Great Wheal Alfred Dylfgwm East Tamar  
Trelawny Mary Ann Trelawny West Alfred West Tamar  
North Trelawny North Trelawny West Alfred South Dog  
North Robert Wheal Gill Great Wheal Alfred Mary Great Consols  
Wheal Surprise Ladock East Frongoch Linares  
And will BUY or SELL any shares or securities for the usual commission.

R. MY. GOULD SHARP TRANSACTS BUSINESS in every description of BRITISH AND FOREIGN MINING SHARES; particularly recommends the present time for investment of spare capital; and has FOR SALE the following SHARES, or ANY PART THEREOF, at LOWER PRICES than hitherto quoted:—

50 North Sortridge. 130 Sortridge and Bedford. 170 Molland. 100 Great Sortridge. 210 North Hington. 150 Great Wheal Hugo. 100 Great Wheal Hugo. 2 Great Sheba. 10 Wheal Edward. 10 Wheal Edward. 10 Quintrell Downs. 150 West Sortridge. 50 Wheal Zion. 50 Wheal Surprise. 50 Wheal Surprise.

JAMES F. BODDY, 48, THREADNEEDLE STREET, LONDON, begs to call the attention of the public to the present DEPRESSED STATE of the MINING MARKET, for INVESTING their CAPITAL in good, sound, MINING PROPERTY, paying regularly from 12 to 30 per cent. on outlay. No other investments afford so great advantages as judiciously selected mining stock.

J. F. Boddy will recommend many progressive mines of great promise, but care should be taken in the selection of the same. Every information will be forwarded on application; likewise a list, and prices of the best dividend and progressive mines, free of charge.—Dec. 9, 1854.

R. CAREY, MINING AGENT, TRANSACTS BUSINESS in BRITISH and FOREIGN MINES, IN INSURANCE, BANKING, and RAILWAY SHARES, at the closest prices of the day.

Mr. CAREY has FOR SALE SHARES in DIVIDEND-PAYING MINES, which, at present low prices, will pay from 20 to 30 per cent.

AND SHARES in GOOD PROGRESSING MINES, with their machinery complete, and raising ores:—Hington Down, North Downs, St. Day United, East Caradon, Cayman, Tamar, Sortridge Consols, Clev Bay, Molland, Combmarin, East Wheal Vor, Dalecarla, &c.

6, Moggate-street, City, Dec. 9, 1854.

BOTALLACK TIN AND COPPER MINES.—Mr. W. CHARLES has SHARES FOR SALE in the above important MINES, which are now paying 20 per share every two months. W. CHARLES has SHARES FOR SALE also in the following:—viz., Great Crimis, West Pen Consols, East Caradon, Cayman, Molland, and Baring, Albion Clay, Wrysgian slate, North Trelawny, and others. Mr. W. CHARLES is a BUYER in West Crimis, Marke Valley, Union Tin, and others.—27, Austinsfriars, Dec. 1, 1854.

MINING INVESTMENT.—T. FULLER AND CO., 51, THREADNEEDLE-STREET, LONDON, beg to call attention to the favourable opportunity of INVESTING in BRITISH MINES, particularly in those dividing their profits every two or three months, which average from 15 to 20 per cent., with every prospect of continuance, and being free from fluctuation, such as Consols, railway, and other securities; and respectfully direct attention to the PURCHASE of SHARES in many PROGRESSIVE MINES, being in full operation, with efficient machinery, for the development and bringing into a profitable state of working, which, at present prices, cannot fail to remunerate all who invest; a careful selection of such shares can be obtained by a daily communication with agents of high scientific and practical experience of the principal mines in Devon, Cornwall, and Wales. T. FULLER AND CO. will furnish every information to capitalists, either personally by letter, and can effect purchases or sales of every description.

R. CHARLES GURNEY, No. 4, CORBETT COURT, GRACE-CHURCH STREET, LONDON, will be happy to PURCHASE or SELL SHARES in all DIVIDEND MINES, now paying from 15 to 20 per cent.; or in those working under prospects of early dividends.

MINING PROPERTY.—Mr. HERRON has SHARES in the best DIVIDEND-PAYING MINES FOR SALE, and which will give the purchaser 15 to 20 per cent. for the outlay. Amongst others are the following:—

Alfred Consols West Caradon Linares  
Trelawny North Pool Aten  
Trehane Condarcorn Imperial Brazilian  
South Bassett South Tamar Hington Down  
South Frances Great Devon Consols Copings  
And has also FOR SALE SHARES in NON-DIVIDEND PAYING MINES, which are worth attention at the present reduced market prices, such as—

East Wheal Rose Crystal Vale of Towy North Wh. Robert  
Gilmar North Downs North Towy Tamar Consols  
Great Alfred Consols Gonanzena Wheal Cunlif St. Day United  
West Alfred Consols Craddick Moor Thomas's United East Bassett  
Grahamber Cwm Darren 24

Mining Offices, 53, Clement's-lane, Lombard-street.

MR. JOSEPH JAMES REYNOLDS, STOCK AND SHARE BROKER, No. 21, THREADNEEDLE STREET, LONDON. BUSINESS TRANSACTED in every description of BRITISH and FOREIGN STOCKS, FUNDS, and SECURITIES; also, BRITISH and FOREIGN MINES.

GENERAL MINE AGENCY OFFICES, 3, NAG'S HEAD COURT, GRACECHURCH STREET. ST. PIERRE FOLEY, C. and M.E., Assisted by eminent Mining Engineers. Private address, 19, Gibson-square, Islington, London.

MR. EVAN HOPKINS, C.E., CONSULTING MINING ENGINEER.—Mr. HOPKINS may be CONSULTED DAILY by gentlemen and capitalists—those who have invested, or may wish to invest their capital in MINES or MINERAL PROPERTIES—on all matters connected therewith—home and foreign. Also, in every description of METALS, MINERALS, ROCKS and their commercial value—NEW PATENTS, &c., so to make a judicious selection and avoid questionable schemes.

Mr. HOPKINS requests his ANNUAL CLIENTS to SEND him their PRESENT ADDRESS, and a list of the shares, &c., they now hold.

Mr. HOPKINS is now prepared to receive prospectuses and reports on new undertakings, to give his opinion thereon, and to take an interest and an active part in the London management of any of the legitimate speculations he may recommend to his clients.—28, Thurlow-square, Bromington.

MR. JOHN H. CLEMENT begs to OFFER HIS SERVICES as CONSULTING MINING ENGINEER to gentlemen and capitalists holding, or wishing to hold, interests in mines or mineral properties in any part of the world.

Mr. CLEMENT, having had a life-long experience in these matters in various parts of the globe, considers that he will be enabled to give the most careful advice, as to how and when to invest in mining property.

Address, 10, Gloucester-street, Campden-hill, Kensington. 28

CAPT. THOMAS DUNN, of TAVISTOCK, undertakes to INSPECT, REPORT, and SURVEY any MINES or MINERAL PROPERTY in ENGLAND, IRELAND, SCOTLAND, or WALES. No objection to take the management of any mine or mines in the neighbourhood of Tavistock.

MR. P. CADELL, Jun., may be CONSULTED on the subject of UNDERTAKINGS connected with GOLD MINING, including WATER COMPANIES, furnishing power and water at a distance from the permanent water-courses, which are at present the most productive source for investment in California. Address, Quartzburg, Mariposa County, California, Oct. 10, 1854. 30

MR. B. LAMBERT TENDERS HIS SERVICES to PARTIES INVESTING in or SELLING MINING PROPERTY. By the soundness of the information to which he has access, and the bona fide character of the undertakings to which he directs attention, his constant endeavours are to secure the support of his clients.—Office, 3, Hatton-court, Threadneedle-street, City. 31

RAILWAYS AND MINES.—To Capitalists seeking investments it may be observed that the market prices of the day are governed more by the operations of speculators and the immediate abundance or scarcity of stock, than by any reference to the intrinsic worth of the property. Railways depend upon the paid-up capital, loss, traffic, and expenditure accounts; the probabilities of competition or alliance with neighbouring companies, the creation of new capital, and other circumstances to which those only can have access will give constant attention to the subject. Mines, on the contrary, are exempt from the vicissitudes of competition. Shares in the safest English dividend mines, pay at the rate of 15 to 25 per cent. per annum on the amount invested, without risk or liability. All the best mines are free from debt, and pay dividends regularly every two months. There are some very promising mines, in the most prosperous districts, fast approaching to a dividend-paying state, which will doubtless, in a short time, command prices far beyond their present market value. Judiciously selected, these are no securities which, with much perfect safety, offer so wide a field for profit as English copper, tin, and lead mines. Every information afforded to capitalists seeking investments, or desirous of exchanging their securities, and sales or purchases effected upon the best possible terms.

JAMES S. TRIPP and CO., 53, Clement's-lane, Lombard-street, London. Established 1839. 32

COBALT AND NICKEL.—ALFRED SENIOR MERRY, REFINER AND PURCHASER OF COBALT AND NICKEL ORES, AND ASSAYER IN GENERAL.—Address, LEE CRESCENT, BIRMINGHAM. 33

NICKEL AND COBALT REFINING, AND GERMAN SILVER WORKS, MILL STREET, BROAD STREET, BIRMINGHAM.—STEPHEN SARKER begs to inform the Trade that he has the following articles for sale:—140 REFINED METALLIC NICKEL. 1 OXIDE OF COBALT. 1 WIRE, &c. REFINED METALLIC BISMUTH. 1 GERMAN SILVER.—IN INGOTS, SHEET, NICKEL AND COBALT ORES PURCHASED.

BBOTSON BROTHERS AND CO., SHEFFIELD, STEEL AND FILE WORKS; also COMMISSION MERCHANTS for the SALE and PURCHASE of every description of MACHINES and MACHINERY, and every article used by engineers, too numerous to enumerate in an advertisement.

MR. THOMAS EDINGTON (late Senior Partner of the Phoenix Ironworks, Glasgow,) IRON MERCHANT, CONTRACTOR, AGENT for PATENTS, GENERAL COMMISSION AGENT, INSPECTOR of RAILWAY BARS and CASTINGS, 17, GORDON STREET, GLASGOW.

AGENT, ON COMMISSION, for the PURCHASE of Scotch Pig-iron, Railway Bars, Bar-iron, Castings; and for the SALE of English Boiler and Ship Plates, Bar-iron, Angle and Rivet Iron, Anchors, Tinned Plates, Chains, Cables, Nails, Steel, &c.

MR. W. T. RICKARD, F.C.S., ANALYTICAL CHEMIST, Assayer of Copper and the Precious Metals, by Special Appointment of the Chilian Government, the British Government, ACORN VILLA, FORD ROAD, OLD FORD, LONDON.

GRAT WHEAL VOR UNITED MINES.—Notice is hereby given, that the HALF-YEARLY GENERAL MEETING of adventurers in the above mines will be HELD at the London Tavern, Bishopsgate-street, on Wednesday, the 20th inst., at Two o'clock precisely. R. T. ALISON, Sec. 30

LACKAMORE COPPER MINING COMPANY.—A GENERAL MEETING of the shareholders of this company will be HELD on Tuesday, the 19th day of Dec. inst., at One o'clock precisely, p.m., at the George and Vulture Tavern, Cornhill, in the City of London, for the purpose of receiving the accounts and a Report upon the state of the mine, and for making arrangements for the future management of the concern. And such GENERAL MEETING will be made SPECIAL, for the purpose of raising additional funds by the issue of the shares held in reserve, and for revising, altering, and amending, the rules of the Cost-book. 29 London, Dec. 8, 1854. By order, JOHN MADDEN.

ST. JOHN DEL REY MINING COMPANY.—Notice is hereby given, that the TWENTY-FIFTH HALF-YEARLY DIVIDEND, being TWO POUNDS per share, free of income tax, on the shares of this company, will be PAYABLE at this office on Friday, the 15th day of December, and every succeeding day, Saturdays excepted, between the hours of Ten and Four. Forms for claiming the dividend may be obtained at the company's office, and must be left three clear days for examination previous to payment.

JOHN HOCKIN, Sec. 30

GUA FRIA GOLD MINING COMPANY.—At the GENERAL MEETING of the shareholders of this company, held at the City of London Tavern, on Friday, the 8th December, JAMES CLAY, Esq., in the chair.

The following resolutions were carried unanimously:—

Moved by the chairman, and seconded by G. Clive, Esq.,—

That G. Clive, Esq., be re-elected a director of the company.

Moved by J. P. Dawson, Esq., and seconded by C. W. Black, Esq.,—

That E. M. Fowles, Esq., and J. P. Judd, Esq., be re-elected auditors of the company.

Moved by J. Wood, Esq., and seconded by R. Kent, Esq.,—

That the thanks of the meeting be tendered to the directors for their efficient management of the affairs of the company, and to the chairman for his urbanity and

decorum in the chair.

By order, WILLIAM J. VIAN, Sec.

Office, 5, Old Broad-street, London. 31

GEORGE MOORE HAS FOR SALE, OR ANY PART, the following SHARES, at LOWER PRICES than have hitherto been quoted:—

200 Bedford and Sortridge. 100 Great Sortridge. 50 Red Dragon. 25 Boringdon Consols. 25 Great Wheal Hugo. 20 Sortridge. 25 Brynall. 25 Great Badger. 20 Tavy Consols. 20 West Jane. 30 Crebior. 100 Kilarne. 20 West Jane. 100 Cae Gwyn. 100 Molland. 50 West Sortridge. 50 Cwm Darren. 100 North Sortridge. 50 Wheal Uny. 50 East Wheal Vor. 5 North Robert. 50 Wheal Russell. 25 Nantnos and Penrhiew. 20 Yeoland. 25 North Hington. A correct price of any of the above shares will be forwarded on application.

GEORGE MOORE is a BUYER of 50 Trewetha and 50 Keswick, at market prices.

32, Nicholls-lane, Lombard-street. (Sworn Broker.)

MESRS. POWELL AND COOKE, MINING AGENTS, 1, CROWN COURT, THREADNEEDLE STREET, LONDON.

£25,000.—THE SWANSEA HARBOUR TRUSTEES are prepared to receive TENDERS for the LOAN of TWENTY-FIVE THOUSAND POUNDS, on MORTGAGE of the RATES and TOLLS authorized to be demanded and levied under the provisions of the Swansea Harbour Act, 1854, in sums of not less than £100. Interest 5 per cent., payable half-yearly. Term, seven years.—For further particulars, apply to Mr. Lewis Thomas, solicitor, Swansea.

TO SMELTERS OF CARBONATE OF LEAD ORES.—WANTED, by the SOUTH AUSTRALIAN COPPER MINING COMPANY, a good PRACTICAL SMELTER of CARBONATE OF LEAD ORES and GALENAS, to proceed to the mines at Strathalbyn, South Australia, immediately. Reference to last employers must be given.—Apply personally, or by letter, to Mr. Webb, C.E., 11, New Broad-street, City.—Dec. 8, 1854.

TO MINING COMPANIES AND OTHERS.—A GENTLEMAN, who has for some years acted as MANAGING DIRECTOR of one of the most important companies in Rhenish Prussia and Westphalia, wishes to CHANGE his present SITUATION, and JOIN an ENGLISH COMPANY, at home or abroad. He is connected with several noble families, and is intimately acquainted with mining business, and the German, French, and English laws relating to mines, as well as with the languages of those countries. He can be highly recommended, and will give the most satisfactory references.—Address, "X. Z." Porter's Lodge, Lincoln's Inn.

TO MINING AGENTS AND OTHERS.—The ADVERTISER is desirous to WORK and SMELT some extensive and very rich COPPER MINES that he possesses, and would be glad to MEET with a FEW GENTLEMEN to FORM a COMPANY for that purpose. Respectable parties only will be treated with, who will find this well worthy of their attention.—Address, by letter, to "J. L." Mr. Roxbrough, manufacturing stationer, 9, Aldgate, City.

TO GENTLEMEN OF INFLUENCE.—The ADVERTISER is desirous to WORK some extensive and very rich IRON and COAL MINES that he possesses, and would be glad with the CO-OPERATION of GENTLEMEN of INFLUENCE to assist him in FORMING a COMPANY for that purpose. The party is bona fide, will bear the strictest investigation, and will be brought out in a perfectly legitimate manner, and yield a large return. This is worth special attention, and respectable parties will be treated with confidence and liberality.—Address, "B. C. D." to the care of Mr. Fryer, Newnham, Gloucestershire.

**FOREIGN VINEYARD ASSOCIATION.**  
Completely registered, capital £300,000, in 10,000 shares, for the supply of Wines to Private Families, Hotels, Messes, Clubs, &c.

CHAIRMAN.—The Right Hon. Lord MUSKERRY, Carlton Club.

WITH six other directors from the principal Clubs of London.

MANAGER.—T. W. STAPLETON, Esq., 51, King-street, Regent-street.

The wholesale scale of prices is adopted by this company. All wines will be strictly of the growths represented, and in every case pure. Private families can have some in large or small quantities, for prompt payment, after receipt and approval of supplies. Examples of advantage in prices.—The finest Epernay Champagne, hitherto charged £10 16s., now £10 9s. per case of 36 quarts; Moet and Chandon's first quality (direct from the firm), hitherto £12 12s., now £9 9s.; Chard, the finest Chateau R. Margaux, or Chateau Brane Cantenac, both under lease to the company, formerly £12 12s., now £7 4s.; Sherries, formerly 30s., now 28s., per dozen; finest Xeres imported, 50s., now 48s.; Ports in same ratio; finest Cognac, pale or brown, 26s. per gallon.

**INDISPUTABLE LIFE POLICY COMPANY,**  
72, LOMBARD STREET, AND 24, CONNAUGHT TERRACE,

TRUSTEES.

RICHARD MALINS, Esq., G.C., M.P. | RICHARD SPOONER, Esq., M.P. | JAMES FULLER MADON, Esq. | JOHN CAMPBELL RENTON, Esq.

WILLIAM WILBERFORCE, Esq.

A reduction of 25 per cent. has been made on the premiums of all policies of five years' standing.

ALEX. ROBERTSON, Manager.

**ECONOMIC LIFE ASSURANCE SOCIETY.**  
The Right Hon. Sir T. FRANKLAND LEWIS, Bart., M.P.—CHAIRMAN.

HENRY FREDERICK STEPHENSON, Esq.—DEPUTY-CHAIRMAN.

ADVANTAGES.

The LOWEST RATES of premium on the MUTUAL SYSTEM.

THE WHOLE OF THE PROFITS divided among the assured every fifth year.

No charge for policy stamps, nor for service in the Yeomanry or Militia corps.

Policies in force, nearly 7000.

The Assurance Fund exceeds £1,400,000. Income upwards of £230,000 per annum.

The sum of £307,000 was added to policies at the last division, which produced an average bonus of £57 per cent. on the premiums paid.

For particulars, apply to

ALEXANDER MACDONALD, Secretary, 8, New Bridge-street, Blackfriars.

SPECIAL NOTICE.—Proposals for assurance must be made prior to the 1st Jan.

1853, to entitle the assured to participate in the next division of profits, in 1853.

**ARK INDISPUTABLE MUTUAL ASSURANCE SOCIETY,**

CHIEF OFFICES.—No. 158, LEADENHALL STREET, LONDON.

Established 1852—Incorporated Pursuant to Act of Parliament.

Guarantee Capital, £100,000.

THE STEERS.

The Hon. FRANCIS HENRY FITZHARDINGE BERKELEY, M.P., Victoria-square, Pimlico.

JOHN SADLER, Esq., M.P., Gloucester-square, Hyde-park.

SAMUEL CARTWRIGHT, Esq., F.R.S., Old Burlington-street.

ROBERT KEATING, Esq., M.P., Clapham-park, Surrey.

J. W. WATSON, Esq., Ph.D., C.E., F.G.S., Upper Brook-st., Grosvenor-square.

DIRECTORS.

SAMUEL CARTWRIGHT, Esq., F.R.S., Old Burlington-street.

CHARLES NICHOLSON, Esq., St. Paul's Church-yard.

JOHN GRANTHAM ROBINSON, Esq., Garter-grove, Brompton.

Hon. C. T. SKEFFINGTON, St. John's Villas, Upper Holloway.

WILLIAM EWORTH TUKE Esq., Upper Avenue-road, Regent's-Park.

J. J. WATSON, Esq., Ph.D., C.E., F.G.S., Upper Brook-st., Grosvenor-square.

AUDITORS—Anthony Peck, Esq., M.A., Public Auditor; William Slade Parker, Esq.; Henry Chatteris, Esq.

MEDICAL OFFICERS—Erasmus Wilson, Esq., F.R.S., and F.R.C.S., Henrietta-street, Cavendish-square; Richard Quain, Esq., M.D., Harley-street, Cavendish-square.

CONSULTING ACTUARY—Arthur Scratchley, Esq., M.A., F.R.A.S.

ACTUARY—William Bridges, Esq., F.R.S.

BANKERS—The London and County Bank, 31, Lombard-street, City; St. George's-place, Knightsbridge; and Connaught-terrace, Edgware-road; and most of the Provincial Towns.

SOLICITORS—Messrs. Long and Long, Cornhill.

SECRETARY—John Madden, Esq.

CHIEF OFFICES.—158, LEADENHALL STREET, LONDON.

This society continues to grant policies, and includes amongst its leading features the following:—

1. An ample guarantee capital.

2. The whole of the profits, after deducting the necessary per centage for the guarantee capital, are divisible amongst the assureds.

3. The policies are absolutely indisputable, and their validity cannot, under any circumstances whatever, be contested against the children or assignees of the assured, except in cases of fraud.

4. The annuities issued by the society increase periodically, from a share of the profits arising in that department.

5. Self-protecting policies are issued, combining the advantages of an endowment at a specified age to secure to the assured himself, or an annuity payable during his life, to commence from the period when he would receive such endowment, or an annuity payable to his heirs in the event of his not attaining the specified age.

6. Policies can be effected upon which only one-half of the premium need be paid for the first five years; the remaining half being payable at the convenience of the assured, or deducting ultimately from the sum assured. Credit is also given for the whole amount of the first five years' premium on collateral security.

7. Temporary advances are made to parties who are unable to pay their premiums as they fall due, and to facilitate the effecting of new assurances.

8. Apprentice fee endowments are granted, also endowments to educate and portion children.

9. Policies effected for the whole of life are transferable to other lives of not greater age, and of good health at the time of transfer. Creditors assuring the lives of debtors will find this feature peculiarly advantageous.

10. The amount assured may, when it becomes a claim, remain at interest (from 4 per cent. upwards) with the society for an agreed term of years, subject to six months' notice on either side. This will be found of great convenience to widows and others who have merely a life interest in the sum assured, and who have no other channel of investment but the public funds, which give but 3 per cent.

11. Clergymen can obtain advances to assist them in making repairs in parsonage houses, and other tenements on church property, and to meet the outlay for dilapidations.

12. In the event of a policy being surrendered through the absolute incapability of the assured to continue his premiums, the society guarantees to give the assured a free policy for a reduced amount payable at death, and equal to the value of the policy which he discontinues. It is unnecessary to insist upon the importance of this feature, which is quite novel in life assurance.

13. A diminution of half-a-year is made on the amount of premiums, when persons assure within six months of their last birth-day.

14. The charges for policy stamps and medical examination are in all cases defrayed by the society itself, and no entrance fees are required.

15. Premiums may be paid annually, half-yearly, or quarterly.

16. Thirty days' grace allowed for the payment of premiums payable yearly; and 15 days for those payable half-yearly or quarterly.

17. Lapsed policies may be revived within six months, upon satisfactory evidence of unexpired health, and upon payment of a small fine in addition to arrears of premium with interest.

18. Transfers and assignments are recognised and allowed by the society.

19. No extra premium is required from persons living during time of peace in any part of the world, not within 35° on either side of the equator.

20. All claims are paid within three months after proof of death, or sooner with discount.

Every risk or contingency, whether for families, joint lives, or individuals, is undertaken by the Ark Indisputable Mutual Assurance Society.

ACCIDENT DEPARTMENT ON THE MUTUAL PRINCIPLE.

Assurances are granted by the society against fatal accident, or against serious accident whether fatal or not. And fixed weekly sums are allowed during disability arising from any kind of accident which does not terminate fatally, together with a sum for medical expenses, and a fixed sum payable at death.

In order to provide for the risk of those engaged in naval and military pursuits, assurances are granted against death or loss of limb by accident or violence from any cause whatever. This species of assurance is also particularly valuable to miners, colliers, quarrymen, and others engaged in dangerous occupations where there is a peril of a like nature. In case of death after ten years of such an assurance without accident, a share in the profits of this department will be paid to the assured's representatives.

See prospectus of the Accident Department for further details of this new feature, which has been settled specially for the Ark by the eminent attorney, ARTHUR SCRATCHLEY, Esq., M.A.

SAVINGS' BANK AND LIFE ASSURANCE DEPOSIT DEPARTMENT.

Assurances are granted by the society, payable at death, on the deposit of any sum whatever, with power to the assured at any time during his life to withdraw the whole, or any part, of the amount paid, together with Savings' Bank interest thereon. This is obviously (to the middle and lower classes) one of the most useful features yet introduced into the system of life assurance.

AGENTS WANTED.

**ASTHMA, COUGHS, COLDS.—ONE OF DR. LOCOCK'S PULMONIC WAFERS,** allowed to dissolve in the mouth, immediately RELIEVES the most violent ASTHMA, COUGH, or COLD, and protects weak lungs from all the irritation of fogs and frosts. Sold by all chemists at 1s. 1½d., 2s. 9d., and 11s. per box.

**DEAFNESS! DEAFNESS!—IMPORTANT DISCOVERY.** Dr. MANFRED, M.R.C.S., has this day published, free by post for eight postage stamps, a "PHYSICIAN'S GUIDE FOR COUNTRY PATIENTS," for the PERFECT and PERMANENT RESTORATION OF HEARING, by his invaluable new treatment. Being a stop to quackery, cruel impositions on the suffering public, and exorbitant charges, this book will save thousands from the impositions of self-styled doctors, inasmuch as the hearing can be restored for life. Deafness of the most inveterate nature relieved in half-an-hour, cured in a few hours, and almost instant cessation of noises in the ears and head, by painless treatment. Hundreds of letters may be seen, and persons referred to, who have heard the usual tone of conversation in a few hours.—Patients received daily at Dr. Manfred's residence, 72, Regent-street, London (first door in Air-street), where all letters must be addressed.

The GLENFIELD PATENT STARCH, used in Her Majesty's laundry, is sold by all grocers and silversmiths; by Robert Wotherspoon and Co., 40, Dundas-street, Glasgow; and Wotherspoon, Mackay, and Co., 66, Queen-street, Cheapside, London.

**HOLLOWAY'S PILLS EFFECTED ANOTHER CURE OF THE DIGESTIVE ORGAN.**—Mr. Andrew Dawson, of Melbourne, was a constant sufferer from indigestion. No matter what he eat, the difficulty of digesting it was always the same, for which he consulted many of the medical profession, and tried remedy after remedy without obtaining any benefit whatever. Being nearly disabled with continual suffering he was advised to try Holloway's pills. He did so, and adhered to the diet recommended by the directions; thus he has so strengthened the tone of his stomach, and increased his appetite, that he can now indulge in any kind of animal or other food without the least inconvenience.—Sold by all druggists, and at Prof. Holloway's establishment, 244, Strand, London, and 30, Maiden-lane, New York.

**PENINSULAR AND ORIENTAL STEAM NAVIGATION CO.**

A meeting of the proprietors was held at the office of the company, Leadenhall-street, on Wednesday, the 6th inst.—Admiral THOMAS in the chair.

Mr. HOWELL (the secretary) read a note from Sir James Matheson, Bart., M.P., the chairman of the directors, excusing his absence on the ground of the indisposition of Lady Matheson, compelling him to accompany her ladyship to Italy, and congratulating the proprietors on the satisfactory position of their affairs. The notice convening the meeting was then read, and the following report of the directors:

In accordance with the standing resolution to that effect, a statement of the accounts, duly audited, together with the supplementary documents, have been laid on the board-room table, during the last seven days, for the inspection of such proprietors as might be desirous of examining the same.

These accounts exhibit, in abstract, the following state of the company's assets, and result of the year's operations, namely:

THE CAPITAL ACCOUNT			
Shows that the company stood possessed, on the 30th September last, of stock in ships, hulks, barges, docks, workshops, buildings, freehold and leasehold, in payments made on contracts for vessels in course of construction, stock of seals on hand, and naval and victualling stores, to the value of £3,335,795 3 5	£3,335,795 3 5	£3,335,795 3 5	£3,335,795 3 5
Also in cash at the bankers, bills receivable, balances in the hands of agents, and debts due to the company, in the course of liquidation	192,000 15 9	192,000 15 9	192,000 15 9
Total assets	£2,143,804 19 2	£2,143,804 19 2	£2,143,804 19 2
That the capital on shares, received from the proprietors at that date, amounted to £1,447,405 0 0	£1,447,405 0 0	£1,447,405 0 0	£1,447,405 0 0
And raised on debentures	500,000 0 0	500,000 0 0	500,000 0 0
Total capital	£1,947,405 0 0	£1,947,405 0 0	£1,947,405 0 0
That the liabilities of the company, on bills payable and otherwise, were £362,623 1 3	£362,623 1 3	£362,623 1 3	£362,623 1 3
Making the total capital and liabilities	£2,187,028 1 3	£2,187,028 1 3	£2,187,028 1 3
Showing a surplus of assets of £463,866 17 11	£463,866 17 11	£463,866 17 11	£463,866 17 11
This surplus is represented by the balances at the credit of the Guarantee Insurance funds, which have been temporarily employed for purposes of depreciation and	£463,866 17 11	£463,866 17 11	£463,866 17 11
Shows that the gross revenue or income of the company, from freight, passage-money, postal service contracts, hire of ships in the war service, and other sources, including the balance of undivided profits (4411, 7s. 11d.) brought forward from last year, amounted, for the 12 months ending 30th Sept. last, to £1,333,367 8 0	£1,333,367 8 0	£1,333,367 8 0	£1,333,367 8 0
That the total charges of all kinds on revenue for the same period, including interest on debentures, and the reserves made for re-pairs, insurance, and depreciation, amounted for the same period to £1,263,918 17 3	£1,263,918 17 3	£1,263,918 17 3	£1,263,918 17 3
Leaving a net profit of £69,448 10 9	£69,448 10 9	£69,448 10 9	£69,448 10 9
Out of which it is proposed to pay a dividend for the year of 5 per cent. on the share capital, estimated to amount to £60,230 0 0	£60,230 0 0	£60,230 0 0	£60,230 0 0
Leaving a balance of £6,218 10 9	£6,218 10 9	£6,218 10 9	£6,218 10 9
Of which it is proposed to apply in aid of a bonus, as subsequently explained	£2,354 0 0	£2,354 0 0	£2,354 0 0
And there will remain undivided, and to be carried to next year's account	£ 414 10 9	£ 414 10 9	£ 414 10 9
And there remains at the credit of this fund	£185,213 16 11	£185,213 16 11	£185,213 16 11
AMOUNT OF THE CLAIM ON THE GOVERNMENT IN RESPECT OF THE CONTRACT POSTAL SERVICE.—The proceedings of the directors, with a view to obtain some relief from the Government on account of the enhanced cost of fuel, wages, &c., in the execution of the contract postal service, caused by the war, were stated in the last half-yearly report. The commissioners appointed by the Admiralty to investigate the claim were furnished by the directors with all necessary information for that object, and made a report thereon. As that report was considered a confidential communication, the directors have had no means of ascertaining its import. Aware, however, that under the present pressure on the public exchequer, caused by the war, to obtain the rates of freight, and consequent reduction of the cost of transport for fuel, such pecuniary compensation could only be claimed for the period over which the consumption of fuel laid in at the high prices extended—the directors were anxious to devise some other mode of relief, which, while it should meet the reasonable claims of the company, would relieve the Government from any pecuniary grant, and involve the least possible detriment to the postal service. They, therefore, proposed to the Government that the company should be permitted to give up one of the			

## Original Correspondent.

## THE WAR—WROUGHT OR CAST-IRON ORDNANCE.

Sir.—An old-established ironfounder, whose family have supplied the Government with guns for little short of a century, we beg you will give insertion to the following remarks, in reply to the comments in your last Journal on the continued use of cast-iron guns in the English service.

By your strictures on the Board of Ordnance, you are indirectly throwing discredit upon us, and other founders, by attributing the failure of the attack upon Sebastopol on what authority you feel justified in thus condemning guns of English manufacture?

If you rest your statement on the opinion put forth by Mr. Nasmyth, we would request you to re-peruse his letter to the *Times*, and you will find that he is condemning the use of cast-iron generally, as applied to the manufacture of ordnance, not because the cast-iron guns of the present day are of inferior quality, but because he considers wrought-iron more applicable to the purpose.

If you found your dismanagement of English guns on the report of the Russian mortar, which you so highly praise, we beg to say that we are prepared to supply a similar mortar to undergo the same trial. The writer of the article in your Journal is comparing a land-service mortar of 36 cwt. with our sea-service mortar of 100 cwt.—two very different things.

We maintain that English guns of cast-iron are as good now as ever they were, and as good as native English iron can make them; and, moreover, they have hitherto been found equal to all occasions.

If you will refer to the histories of the sieges during the Peninsular War, you will find that our battering trains consisted of 18 and 24-pounder cast-iron guns.

Some of these guns were fired over 2500 rounds, and were still serviceable, excepting from the enlargement of the vents—an effect that would be equally produced on wrought-iron guns, and the more so when fired with the heavy charges suggested by Mr. Nasmyth.

At Sebastopol, we have 10-inch, or 84-pounder, 68-pounder, and 32-pounder guns, and we attribute our detention before that fortress solely to the numerical inferiority of our army.

You doubt whether it is possible to cast and bore guns capable of throwing shot of between 2 and 3 cwt., and if east, whether they could be moved by horses, or worked by human hands. We beg to inform you that we cast and bore such guns 13 years since at these works. They were for the fortifications of Alexandria, and we give full particulars of them, that you may know what has been, and can be, done by the gunfounders of England.

We cast ten guns:

Calibre.....	15½ inches	Proof charge.....	65 lbs. powder, and shell of 320 lbs.
Rough weight.....	30 tons	45 " " " shot of 456 lbs.	
Finished ditto.....	18½ tons	45 " " " shell of 320 lbs.	
Length.....	13 feet	Service charge.....	35 " " " shot of 456 lbs.
Weight of shell.....	320 lbs.	Weight of shot.....	456 lbs.

Twenty guns:	10 inches	Proof charge.....	40 lbs. powder, and shot of 130 lbs.
Calibre.....	20 tons	Rough weight.....	11½ tons
Length.....	12½ feet	Service charge.....	45 lbs. of powder, with shell of 656 lbs., containing 55 lbs. of bursting powder.
Weight of shell.....	52 lbs.	Weight of shot.....	130 lbs.

One mortar:

Calibre.....	20 inches	Proof charge.....	40 lbs. powder, and shot of 130 lbs.
Rough weight.....	20 tons	Rough weight.....	11½ tons
Length.....	13 "	Service charge.....	45 lbs. of powder, with shell of 656 lbs., containing 55 lbs. of bursting powder.
Weight of shell.....	52 lbs.	Weight of shot.....	130 lbs.

All these guns were proved, and passed examination at Woolwich. Therefore, we know that such guns can be made; but as to the moving or working of them, we think they are too large either for ships or siege trains, and such, we think, would be the case with the wrought-iron guns proposed by Mr. Nasmyth. We quite agree with him as to the comparative strength of cast and wrought iron; but the question is whether there would be any advantage in having wrought-iron guns to throw shot of 2 to 3 cwt. We think not. Suppose you battered a fortress from a distance, so as to be out of reach of the enemy's fire, as he suggests, you must still have a sufficient force to take the place, or the result would be as is the case now at Sebastopol. We can breach the place with our modern cast-iron artillery, and without very serious loss in the trenches, but we have not force sufficient to take it.

With regard to the Lancaster guns, there is a great misunderstanding on the subject.

People seem to be possessed with an idea that cast-iron guns are bad because they are not quite equal to firing their shells.

It is not so; but if you employ a gun which is not quite equal to fire round shot of 68 lbs.) to fire the new shells, which weigh 100 lbs., it is evident that the gun will not withstand so many discharges, especially at the elevation required to get a long range. Therefore, you must either reduce your charge of powder, use heavier cast-iron guns, or employ a stronger material—wrought-iron, for instance, as Mr. Nasmyth suggests—if you can make them perfect; but you must not expect that the invention can be brought to perfection all in a moment. Enough has already been done, we think, to show that the authorities are quite alive to the subject.

There is another erroneous idea on this subject. It seems to be the opinion that wrought-iron guns, in consequence of the greater strength of that material, may be made much lighter than cast-iron guns. This is altogether a mistake; for, if the weight of the gun is not proportioned to the weight of the charge, the recoil will be so severe, that the gun would very soon be destroyed, and a great portion of the effect of the discharge would be expended on the recoil of the gun.

We were present at the intentional bursting of a wrought-iron 6-pounder field-gun, made here, and which we were allowed to send to Woolwich, for experiment, about 12 years since. At each discharge, when the proof load was 6 lbs. of powder, with two shot and two wads, the gun was actually turned upside down, the carriage being on the top of the gun, and the muzzle of the gun where the breech had been before firing. Might we not, therefore, expect a somewhat similar result when using wrought-iron guns of a weight disproportioned to the charge?

J. AND E. WALKER.  
Gospel Oak Works, Tipton, Staffordshire, Dec. 6.

## THE WAR—WROUGHT OR CAST-IRON ORDNANCE.

Sir.—I notice in your leading article a very interesting detail regarding the manufacture of heavy ordnance, and referring to the great power obtainable by the use of Nasmyth's steam-hammer, and facility of making large articles from wrought-iron. As this subject has had a good share of my consideration, you will, perhaps, allow me to lay it before your readers in my own way.

The metals hitherto used for ordnance have been brass and cast-iron. The power of resistance which each of these metals is capable of sustaining is well ascertained; and all the improvements made in ordnance have been in a judicious distribution of the metal, so as to obtain as great an effective power as possible. I admit that very great skill has been displayed in perfecting our ordnance as it exists at present. Other metals may, however, be used for the manufacture of ordnance, and I think with great effect, particularly just now, when all the means and appliances the nation can command should be brought forward. I am, however, very much averse to leave a system which has been so long used, and proved in our wars, happily long past, to be very excellent; yet I do agree with you that the arts have made great advances since 1815; and we have now more accurate knowledge of the manufacture of metals than we had at that period. Your remarks regarding the production of a piece of ordnance of greatly-increased power, leads me to ask, does the service really want a very light gun, combined with increased power of resistance? If a piece can be produced of very great strength, and much lighter than brass ordnance—say, half the weight—am I right in supposing that such a piece would be very desirable and eminently useful in the present war?

I presume if a greater strength can be given to a piece—say, capable of holding an 80 lb. ball—such ball can be made to take a longer range by the addition of a larger charge of powder? If so, we only want to obtain such strength.

As regards ordnance made from wrought-iron, however well they may be manufactured, there exists, and must always exist, a serious difficulty. It is this: When a piece made from wrought-iron by welding several large pieces together has been in use for a few days, the shock given to the metal during its continual discharge will gradually disintegrate the bars so welded. Pieces of iron—such as steam-packet shafts, &c.—are subject to no such shock. A wrought-iron gun may, I admit, be made perfect in itself, and, when turned and bored, apparently with no defect. It may stand several proof charges, and be sent out anticipating complete success; but when such gun is mounted in battery, and subject to a brisk firing, I much fear its weldings would gradually disintegrate, and very shortly the piece would become useless, if not dangerous. I notice Mr. Eastwood made an iron gun at the Mersey Works. Perhaps you know that it burst, and sacrificed many valuable lives (I forgot the particular occasion) in America.

Cast steel ordnance have, I know, been proposed; but I long list of objections. Now, I propose to manufacture a piece of cannon which shall have none of the defects I have detailed to you. I propose to make it so that it shall be capable of maintaining more than three times the internal resistance of the best made piece, and, in consequence, proportionately lighter. I can make either battering cannon or mortars of any size. If the piece be required of some weight to overcome the recoil, I can give any weight which may be desirable; and in doing this I give the piece an additional strength; and if the service requires this great power of resistance against the shock given by the discharge, they can have it, and, perhaps, he enabled to throw ball and shell to a greater distance. Now, I could prove what I say to any one so clearly that they would at once see the truth of my assertion; but I do not know to whom to apply. It is useless going to parties who have not the power to act; but if I could know whether a piece of ordnance, having the above qualifications, be really wanted, and would be useful in our present war, I would most willingly come up to London, and lay my plan before the proper parties, also such wooden models as might be required to prove what I state.

The novelty consists mainly in the manufacture of metals. I have no welding process, such as a large mass of iron would have. The gun, when made, must be perfect; and I feel sure I can show that cannon so made will exert any amount of resistance.—Sheffield, Dec. 6.

## THE COCAES AND GUIABA MINES.

Sir.—I am glad to find the affairs of this company again affording subject of comment in your Journal. The concern is not a bubble, and will bear out, as far as any evidence I can obtain, the character given by your correspondent. If, then, it is of the value stated, why are the shareholders in their present position? The only answer from all quarters is, the want of public confidence in the management.

Mr. Oxenford is a perfect stranger to me, and I neither charge or insinuate anything inconsistent with integrity of character. I am told Mr. Oxenford is willing to give up his management on these terms—5000/- down, and half the gold obtained in the future, until the whole of his claims are liquidated. Can he be serious in the propose? Does it look like a real intention on his part of giving up power and influence? I am sure his chances of such terms is small indeed. One thing, however, strikes me in the proposal—that the interests of the shareholders are considered of minor importance. How can he hope that those who have met with so little consideration in the past will be prepared to help a management which has been so unproductive?

Whether true or otherwise, the general impression is that to Mr. Oxenford's management is to be attributed the present state of public opinion respecting the Coceas, and I am much mistaken if help of any kind can be obtained by him.

He is at present occupying the post he at present occupies. I am also assured that, was it known such a change had taken place, the value of the shares would be materially enhanced; and if the property was secured to the shareholders, and placed in vigorous hands, some-

thing important might be realised. Is it not, then, mortifying to those who have invested in the Coceas to find themselves thus deprived of the advantages they might otherwise obtain, and that Mr. Oxenford continues in the management, at the enormous sacrifice of his own interests and those of all concerned? The improved value of the shares contingent on his withdrawal would amply repay him. To me it is a mystery, not merely that the shareholders are so quiet, but that he should not at once get fairly rid of his responsibilities in something like an equitable manner.

I am no advocate for a wholesale sacrifice of all the claims of Mr. Oxenford; his interests ought to be as much protected as those of any one concerned; but let Mr. Oxenford, seeing that the onus of the past and the present rest upon him, place himself upon a level with the rest of the shareholders, and submit to the fate, whatever it is, which they will have to experience. How far he hopes to be paid when their shares, under his management, are reduced to 1½/-? On the one hand, the improved value of the shares contingent on his withdrawal would amply repay him. To me it is a mystery, not merely that the shareholders are so quiet, but that he should not at once get fairly rid of his responsibilities in something like an equitable manner.

By your strictures on the Board of Ordnance, you are indirectly throwing discredit upon us, and other founders, by attributing the failure of the attack upon Sebastopol on what authority you feel justified in thus condemning guns of English manufacture? We would ask you to re-peruse his letter to the *Times*, and you will find that he is condemning the use of cast-iron generally, as applied to the manufacture of ordnance, not because the cast-iron guns of the present day are of inferior quality, but because he considers wrought-iron more applicable to the purpose.

If you found your dismanagement of English guns on the report of the Russian

war, and want of judgment, rather than a wish to despoil, because when a man reports favourably on a mine, and purchases shares in proof of his good opinion of the concern, and mistakes grey ore for powder smoke, as recent results indubitably prove, the ore being *ore* as it is, it is not a matter for wonder that Capt. Skimming should have perished in the mine of Kenmare.—*Kensore, Dec. 4.*

W. THOMAS.

## MINING TERMS, AND IRISH MINES.

Sir.—I am sorry to have again to trespass on your pages, but I hope your Dublin correspondent's appeal, in last week's *Journal*, will be a sufficient excuse for my doing so. First, as to "quartz and quartzes." When I speak of the latter as being "quartz of mountain masses," I do not mean the quartz of lodes, veins, &c., in those mountain masses or formations, but the formations themselves, where they were either altogether or entirely solid "quartz rock," or where they were formed of beds of that substance, interstratified with the slate or other rock occurring with it. Here, of course, the presence of "quartz" would be no proof of the existence even of a lode, much less an indication of a metalliferous deposit. Quartz, however, properly so called, as I apprehend it, is that occurring in lodes, veins, and strings, or feeders, which may be found in slate, granite, limestone, porphyry, "quartzite," or any other formation. Such quartz has been deposited in the slate lodes (which were at one time cliffs in the rock), and subsequently to the deposition of these formations themselves, and it is, therefore, of a much later, as well as of a very different origin. One of the siliceous formations those lodes are found in. Its silica may certainly have been derived from the country around, and no doubt generally was so, but that does not prevent its being a later deposit, and, therefore, having a different origin. The one, for instance, in the slate of slate originated in a wavy deposition of sand, afterwards hardened into stone, occurring on a great scale, and extending over whole districts. The other was confined to cracks and clefts in the solid rock, which were filled up by chemical and electrical depositions of sublimations. I consider that I am, therefore, correct in stating that they are perfectly distinct in their origin.

And now as to the extensive district in West Cork to which your correspondent alludes. I have only to repeat that, although I may have expressed an unfavourable opinion of a particular lode in one of them, I never thought of condemning any whole district. The evidence for or against a particular mine, or lode, must be chiefly dependent on its own particular indications, which do not, of course, condemn any other lode in its neighbourhood. There may be bad and unproductive lodes as well as good ones in the same identical district. In fact, in my extensive district can we expect all the lodes to be productive, and in many instances the same lode will be found rich in metalliferous deposits at one place, and at a considerable distance poor and unproductive. But it would require a volume from me to go into the subject fully, so I must stop. I will, however, just add that I have no hesitation in saying, from my knowledge of the district to which your correspondent alludes, that there is a very great similarity between them and the country lying to the north as far as Berehaven and Kerry, and no man can fairly condemn any portion of it, or say that in any one part as good mines may not yet be found as have been already found in another. It may not be very likely that a second Berehaven will be discovered, though such a thing is by no means impossible; but, at all events, many mines may be found throughout it that might be very profitable concerns, without being exactly equal to Berehaven.

I have now to conclude, by thanking your correspondent for his courteous mention of me, and will only say that, if he will call, *in quo*, or otherwise, at my office, he can see some specimens quite *apropos* to our discussion, from a mine lately discovered in the county of Mayo, which is now being tried, and which I hope bids fair to be a paying mine before long, and to take an important position in "his articles," which I can assure him will not be the least interesting parts of the *Mining Journal* to me during a short residence which I am now about to make in the south of Europe; thus, in the present, absenting myself from our home and more familiar fields of mining enterprise, with most of which I have been hitherto so intimately connected and acquainted, that I shall, of course, always feel deeply interested for their progress and success.—*Henrietta-street, Dublin, Dec. 5.*

R. W. TOWNSEND.

## CRADDOCK'S ENGINES.

Sir.—Mr. Craddock's immediate reply to Mr. Bennetts' exposition was what I expected, and the refutation is as precise as my previous knowledge of his accuracy led me to believe I should hear; but I grieve to find that he is still pursued by that ill-founded friendship which has been so extraordinary a feature in my acquaintance with this serious business.

Of the various points in dispute relating to mere circumstance, and of the contradictions to Mr. Craddock on the details of the engine, I shall say no more than this:—When opposite assertions proceed from two persons—one entirely a stranger, the other well known for minute and tried veracity, the balance of belief must preponderate in favour of the latter. And it is no unimportant trait, as affecting these differences, that the fact which is of much consequence as all the rest together—the corrosion or destruction of the substance of the cylinder facing—is entirely passed over by Mr. Bennetts.

As Mr. Craddock justly remarks, a comparison of the duty of an engine leaking at the valves and in the boiler, with engines in perfect order, would be an absurdity. But though Mr. Bennetts drew no line between the duty of the periods when the engine was perfect and imperfect, yet it was bound to suppose, in fairness, that he had made the distinction, and given his comparison from data when the engine was able to do its duty, not when it was unable; and I passed on to the important inference from his letter, that it was an essential quality in the performance of these engines to bituminous: 26 years ago anthracite coal was slowly introduced into Philadelphia. The bituminous coal mines, at that time, were no advantage to the north, in consequence of the want of means of transit. The nearest, save those on the Ohio River, were on the James River, above Richmond, Virginia, little of which found its way to the north. The principal coal used for smiths' purposes was from Great Britain and Nova Scotia.

As I was a resident in the United States at that period, and felt much interest in the use of this coal—and I may say, with truth, that I had much to do in its introduction—it may not be amiss, in a brief manner as possible, to describe to your readers how simple the means were that overcame seeming difficulties, and that step by step anthracite has become in that great country the universal fuel for almost every purpose; and, although they now are enabled to bring an abundance of other coal into that market, yet few if any.

I should say that, after several years of trial, one important fact presented itself, which was to break the coal, and screen it into uniform sizes, adapted to its various uses—the largest being what they term egg size; the 2d, nut size; the 3d, pea size; and, lastly, dust: they are all known in the market under the above terms. The egg size is used for open grates, the construction of which differs somewhat from our English grate; the bars being placed in a vertical position, and curving under; they are thin, and placed close together, allowing only about one inch between each bar. The throat of the fuel is not immediately at the back of the grate, but above, and a little forward, so that the air does not pass over the top of the fuel to cool it; by this means it is forced through the fuel.

Another great fact to be observed is, *not to use the poker*; merely riddle the dust with a thin piece of iron from the bars about three times a day, feeding it at the same period; thus you have a good clear fire, preferable to the bituminous coal, we can rid ourselves of prejudice. The second, or nut size, and also the third, or pea size, are generally used in parlour, office, or cooking stoves, for which the Americans are univised: the form of grates is similar to the one just described, taking great care that no air enters but through the fuel.

The pen and dust sizes are used under stationary steam-boilers, and require a fan blast, as the particles lay close together, it is difficult to get the air through: this should be laid in thin strata, not more than 3 to 5 inches thick, and kept alive by the fan, when it will burn well, and is found to answer for stationary steam-engines.

In the many attempts at first made to burn it in marine boilers, it was taken up, and abandoned again and again; and it was for years considered a problem not solved. Some supposed it wanted a greater area of fire-grate than was used for wood. Others fed it through hoppers, and uniformly all over the surface, increasing the draft in the best way possible, either by lengthening the chimney or using a fan-blast. All these difficulties passed away without any material alteration to the boilers; it merely rested on the manner of igniting the fuel, giving it time for starting, and doing away almost with the use of the poker.

I have frequently travelled 85 miles on the Hudson, from Newbury to New York, without the engineer feeding the fire the whole voyage, with only one stoker to the boat, and he amusing himself with the newspapers the whole journey, with his face as clean as that of the captain's. It is at present universally used for both sea and river steamers in that country.

In introducing it to the melting of iron in the ordinary cupola, there was seemingly much to contend with. It was first used as a mixture, either with coke or charcoal, and for some years this was the way in which it was used; but by charging the furnace more uniformly with alternate layers of coal and iron, and allowing it more time to ignite before applying the blast, the whole difficulty was overcome. There is not a founder in the northern towns or cities but uses it exclusively as a fuel for melting of iron. The construction of the cupola, and the application of the blast to the fuel, is somewhat different; but it can be used in any cupola.

To all the purposes of smelting iron from the ore, puddling, re-heating, melting in the cupola, and even the common smith's forge, do they use this fuel in preference to any other, although they have now an abundance of other coal, quite as good as any in great Britain.

From common calculation, it is supposed we have anthracite enough for a thousand years' consumption in South Wales; and it only wants a little perseverance, with less than a little of prejudice, to ensure success in its adoption to any and every purpose where bituminous coal is now used; and would prove a great boon to our country.—*Barnsley, Dec. 6.*

## ADVERTISEMENT.

Sir.—Having seen some remarks in your Journal of the 25th Nov. respecting the late manager of the Kenmare Mine, I have to request the favour of your inserting the following statement in your next Number, and I will be as brief as possible. In August, at the half-yearly meeting, the mine was reported to be

Cornish engines, the objects of comparison, are managed the same way. If a man keeps a team of 30 strong horses to draw one single load of stone per day, backwards and forwards, how would he look if accusing the dealer of selling him bad cattle? The comparison is so futile and unfair, that I do not see why the 15 lbs. pressure, merely sufficient to move the load, might not just as well have been taken as the basis. For Mr. Bennett's either means that the 15 lbs. is a fair representation of the capacity of the engine and boiler, or he does not. Which way, then, is it?

These inventions are of no ambiguous character; they do not consist of a little this, and a little that, with no great difference. Whoever rightly understands them must place the same faith in them which I do. They require proper attention and treatment, of course. It was not the least essential feature in the contracts by which Boulton and Watt at last succeeded in introducing their machines, that their own engineers attended to see they were not spoiled. These engines are not worth making to realise such a vague something or other, as Mr. Bennett seems to have expected; and I assuredly it will not answer to have them 30 or 40-horse to do a horse and a half of work. As Mr. Craddock states, in his plain remonstrance to the Commissioners of the Great Exhibition, on the exclusion of his works, "these inventions are not what I represent them to be, or they are nothing." In fact, the performance of no engine is capable of a more exact estimate.

The next report will, I hope, give us the duty per bushel of coals of the 242<sup>1/2</sup> engine referred to, when kept working at 15-horse power only. DAVID MUNSTER.

#### CORNISH MERCHANTS, AND LONDON ADVENTURERS.

SIR.—Your correspondent's letter, "Alpha," bears on its very face, to any one acquainted with the Cornish merchants, purasers, and agents (as a body), such a tissue of misrepresentation, that it needs hardly to be contradicted; but as there are a large class of persons who adventure their money in Cornish mines, and who know but little of the parties to whom they intrust it, or the amount of care exercised in its expenditure, I incline to give my reason for denying the charge made by "Alpha." This statement, or even the evidence I may adduce to prove it, may not be considered worth much as such as "Alpha," but with honest and principled men it will have weight, therefore let it stand for just as much as it is worth. In the first place, then, I am one of a firm doing very largely with a great many mines in the supply of materials; I am not, neither are my partners, purasers of any mines, and we adventure very little; but we can affirm that during the past ten years, neither directly nor indirectly, has any puraser or agent of any mine been interested in, or received any portion of profit from goods we have supplied. We are surrounded by other merchants, and have often to give priority to the purasers, though we are not always successful in obtaining the orders we desire, because the price from some other party has been less than ours; we cannot, therefore, believe that other merchants fee the purasers and agents by a part of the profit, seeing our trade is an increasing one, without feeding either one of the other, or giving to the "dishonest purser" part of our extra gains.

"The merchants must have orders," says "Alpha," whether required or not; may we ask what becomes of the goods so ordered? Does the purser have them conveyed to his own private store? or does he allow them to remain on the mine and rot?

"Alpha" intimates that Cornish miners have lately "proved dishonest," and, therefore, mines must be brought under London control. I would ask, Are Cornish purasers proved to be more dishonest in proportion to the London ones?"

We have and shall continue to get our money from defaulters in mines by law, though it would be to our interest to be paid through the purser. The principle is bad, of keeping merchants out of their money for years, in order that defaulters may be sued by them, seeing, too, that the bills have been charged, and no extra "25 per cent." can be added. Merchants are in the unenviable position of getting their rights this way, or not at all.

There are a class of persons who, because they have not signed the cost-book, deny their liability, though in other ways they have acknowledged themselves shareholders. They hold fast the shares in case the mine should cut rich, yet refuse to pay their quota of costs when the bills are made, and no call is made but in the meeting of shareholders. Should the mine prove not worth prosecuting, there is often a heavy amount of call due from these men, and the purser finds the easiest and by far the cheapest plan to recover it is by asking a merchant to sue them, but the "sharp lawyer" is not set to work till after repeated applications for the money, and we have never seen "indiscriminately" sued adventurers in mines, and we have never been asked either by Cornish or London purasers to sue any other but defaulters, and I take it "Alpha" is either one of this class, or else a discarded London committee-man.

Dec. 5.

#### A FEW WORDS FROM "ARGUS" (OF TRURO), TO ENNOR THE "INVINCIBLE AND INVULNERABLE."

SIR.—I am, from age, obliged to admit that I cannot run so fast, with heel or pen, as Mr. Nicholas Ennor, or I should have sent a line last week to set him right if he will allow any one to do so), and not a rope to hang himself, as Mr. John Jones offers in your Journal of Saturday last. I am of a naturally quiet construction of body, and my disposition accords with it: I do not profess to make "a circle round the world," and visit 100 mines so speedily as my visionary and restless friend does; still I flatter myself that I have visited and inspected, in my time, twenty to his one, even before he understood what true and legitimate mining was.

I admit him to understand quarrying practically, but in mining he is a mere tyro—a perfect ninny in comparison; and this I whispered in his ear (unfortunately it is very deaf) three years ago, when he first attacked me on the granite question at Great St. George. Copper was the metal then: he now shifts it to tin; whilst I contend all the granite exposed to the naked eye of truth is but a mere patch, at Clegga; and this is testified by Sir Henry de la Beche, Henwood, Hawkins, and the best authorities as regards our Cornish geology.—Ennor had better go shooting rabbits in the manor of Mithian, accompanied by his brother (who hits his mark five times out of six), than sit down dictating for his daughter to write such idle jargon to you. I am acquainted with his family's avocations, as well as his own, and I wish them many happy new years—they have been no strangers for the last thirty.

I am surprised that he should venture to publish to your readers (who know the fact to be otherwise), that "with regard to Mr. Proctor's affair, I was the first to attack him, as also the gold bubbles." Your pages testify to the contrary in the first instance, and in the latter.

When the name of Nicholas Ennor was unknown in the mining hemisphere, or the town he now resides in, during the years 1829 to 1832, I was frequently in the vicinity of Taunton and Wiveliscombe for a week at a time, inspecting the district around for Viscountess Bridport, Col. Fortescue, and others—as well as for the late Dr. Sully, of Wiveliscombe—and frequently consulted by Mr. Andrew Cross, of Broomfield, when the subject of gold was uppermost in their sanguine expectations, although below zero in mine. I told them, "one and all," not to embark even their smallest silver coin in the pursuit of gold, but rather put their spade/gunness in searching for copper. There are still living witnesses of this. I doubt whether the "invincible and invulnerable" Quixotte had at this period ever put foot on the eastern side of Poultney Bridge, or ventured beyond the county limits.

Our last interview was in the Crystal Palace, 1851; but I refrain from relating particulars—it was ludicrous. He then promised the world a conception of his own adventures and experience in mining and quarrying. Let me advise him to publish it with the now promised "drawing of the Great Phenix" junction, showing that there is not another such, known, in the west of England." When this *miracle* appears, I shall have no difficulty in showing that my *genious-theoretical* friend will never act the Tham's or world in a *game*; although he attempts, like the spirit Gathon, to show me signs where lies the *richest* lodges, and where the barren and unproductive.

I give him credit for no evil intention, and will join him heart and hand in exposing the trickery practised by parties starting bubble mining companies. He will at all events allow that I preceded him in that; if not, your pages prove it. I court not popularity, as he does; and yet I may venture to say my acquaintance extends far and wide around the mining districts of Cornwall, Devon, and Wales, although I have not met a score mine agents who remember having been visited by the invincible N. Ennor, or even set eyes upon him; and most of the influential never heard of or about him beyond the pages of your Journal.

He reads a vast deal, and has a retentive memory: to that he is indebted for the "running pen," so well handled by his daughter, who does the scribbling business for him, and distributes his unlimited wonders of imagination so often to your pages. In them he found the plain, straightforward, and humble "Argus" (of Truro) long before he wielded the gooseneck; and scribble what he may, he will still find me to be his *adversary*. Dec. 4.

#### ESGAIR MWYN MINING COMPANY.

SIR.—A meeting of shareholders in this company, announced by public advertisement, but the proceedings of which were conducted with closed doors—so far as regards the exclusion of the public press—was held on Tuesday last. The object of the meeting—at least, it was so announced—was "to consider and determine the best means of providing the necessary funds for the prosecution of the undertaking." What, then, in the name of common sense, could the handful of *viscerae* present have to conceal from the great body of absent shareholders? And if the object of those who sat in "contemplation deep" were really what it purposed to be, was the suppression of publicity through the medium of the press the way to attain it? In my judgment, a more unwise and imprudent course could hardly have been conceived. Thus it is that mining adventure is lowered in the scale of legitimate enterprise, that the share market is depressed, and property of intrinsic value too often prematurely brought to the hammer.

Whether Mrs. Esgair Mwyn is struggling into notoriety, or has been excluded from your Share List with others unworthy of distinction, matters not, but I am satisfied that the great majority of your readers will agree with me that so fastidious a lady will find it rather a difficult matter to secure any vast amount of popularity.

When the affairs of a public company are entrusted to the management of a handful of capricious individuals, and such parties assume a controlling, dogmatical, and most unwarrantable power, it is, in my opinion, high time for those who have an interest in any such undertaking to be on the alert, and to watch with extreme jealousy proceedings which are calculated to excite suspicion, and which cannot be regarded otherwise than most mysterious. Shareholders must look to their own interest.

ONE PRESENT.

#### THE ESGAIR MWYN MINE—TO THE SHAREHOLDERS.

GENTLEMEN.—At the special meeting convened for the 5th inst., which only a very small number of the proprietors attended, it was proposed to replenish our exchequer by the re-issue of 1795 shares (described as "forfeited") at 12, payable by gradual instalments; these shares to possess the same rights and privileges, in respect of voting powers and dividends, as those originally taken at par (25.)

I question the legal power of the directors to do this, or of the proprietors to adopt the proposition without a previous alteration of the Deed of Settlement, for which two extraordinary general meetings are required. If my view in this is correct, the proposed measure is open to the objection, that any dissident shareholder may now, or hereafter, subvert the proceedings by recourse to equity, and involve every co-adventure in litigation. But there is another drawback, more palpable and not less important. Take the most favourable aspect, and assume the mine to progress steadily dividendwards, you cannot bind any proprietor, having paid the instalments, not to sell his interest, and it is idle to suppose there is none who would do so. Presuming any such to avail himself of the common advance of 1/3 per share, the operation might be profitably repeated by eight successive holders, and then only reach the par value of the present stock!

More probably, however, taking into account the ordinary fluctuation of the market for securities of this description, a *fixed* *million* of 30s. would be established, and thus fix the price of your present shares at a permanent discount of 10s. Take the other alternative; how (and I for one can by no means sanguine that the amount thus proposed to be levied will suffice to discharge our liabilities and to ensure success) will it be if the undertaking does not proceed with sufficient rapidity, and with nearly 2000 shares, almost one-fourth of those then issued to be had at half-price or less?

Will you, as men of business, allow this? Will you not rather act according to a former proposal of the directors, and take each his *pro rata* proportion of shares, paying thereon a deposit of (say) 5s. or 10s.? The obligation to pay the succeeding instalments, which would be determined at fixed intervals (or of course fully payable,

at option), would be coupled with the advantage that it would neither be in the power or interest of any dealer to quote the shares at 10 per cent. below present par.

CITY, Dec. 7.

#### SAFETY FUSE.

SIR.—To any person with an ordinary amount of insight into the motives of action in their fellow-creatures, the communication headed "Safety Fuse," in last week's Journal, will be viewed in its proper character—in fact, the motive is so self-evident, that it is unworthy of a remark. But, Sir, let me ask, is it fair that your highly-influential Journal should be made the medium of such statements as the one I am now noticing; for it is possible that persons, knowing nothing of the parties attacked, might suppose there was some truth in the allegations, from the fact that so respectable a paper as the *Mining Journal* had given them a place. W. B. BROWNE.

Cornwall, Dec. 7.

#### MR. SURVEYOR SYMONS, AND THE SAFETY FUSE.

SIR.—I have read the letter of Mr. Symons on the safety fuse, and can see nothing but prejudice in every line. What can Mr. Symons know of mining underground, and of the safety fuse? He ought, though, to understand something of the theory, as his profession often calls him to mine.

I recollect, in 1832, I heard a Truro shoemaker, in London, lecturing on mining. I went into an hotel near Temple Bar, and a friend told me there was a mining lecture going on inside. Listening at the door for some time, I recognisèd the voice of the speaker, and felt anxious to hear him; I opened the door, and went in, but the lecturer had closed. "Major," said I (for so they called him), "where did you get your mining from?" He replied, "From you and others." Further, "Before the market was at Chelmsford," said he, "some very intelligent miners from that place used to come to Truro market on Saturdays: they used to hold a discussion on mining, and there it was I picked it up."

I would advise Mr. Symons to stick to surveying. I would be bound to give him a place of fuse from Messrs. Smith and Davey, another from Mr. Hocking, and a third from Mr. Brunton; and he would not be able to tell me who was the manufacturer of either. Of Messrs. Bickford, Smith, and Davey, too much cannot be said in praise of their invention. Hundreds of lives have been saved through the instrumentalities of their safety fuse. I recollect, when the iron hall was used, scores were passed without hearing of some poor man being shattered to pieces by the blast of a hole which operation was a dread to the miner. On the man who turned the borer to bore the hole devolved the duty of blasting it, and many preferred using the mallet, let the hole be as hard as might. Copper mallets were afterwards introduced, instead of iron, and were considered a good invention. Still the miner had his fear of blasting, and not without some superstition. The boys used to gather rushes instead of the fuse now used, for which they received two candles per bundle from the master. That work was generally performed on Sundays, but the men would give a candle more for a bundle cut on a Saturday, for fear of an accident.

I used the fuse nearly as soon as it came out, and I return Messrs. Bickford, Smith, and Davey my sincere thanks for their invention. I have of late years given each of the inventors a turn, and I pronounce them to be all good, if proper care is taken of them, not forgetting the original Smith and Davey. WM. HEATH.

Lydford, Dec. 6.

#### PRACTICAL MINING.

SIR.—In my letter of Oct. 24, I endeavoured to explain, in answer to Mr. Ennor's question, how it was that minerals occurred in cross-intersections of lodes, without even giving an opinion as to the cause, or the effect they would have on each other, as Mr. Wilkin would insinuate. Although I gave but one solitary instance of a heavy which had no copper in it, they are seldom found without it.

Some gentlemen wished me to meet Mr. Ennor at the Queen's Head Inn, Tavistock, on Friday, Nov. 24, for the purpose of holding a discussion on this and other matters connected with mining. I called, and Mr. Northey's people told me that his bar had come by coach that morning, but he himself had not arrived, thus losing the opportunity of a verbal explanation, which I much prefer to one on paper—in fact, I consider the best test of an agent's qualifications to be on paper: there are many, more clever than Mr. Ennor, who have never written for your Journal at all.

I esteem the *Mining Journal*, and know it to be a very good medium for giving things publicity. My reason for replying to Mr. Ennor's questions was, that in many instances, in my opinion, he formed a wrong estimate of practical mining; and it was my impression that such letters did mining more harm than good. Out of the 100 mines which he says he has inspected, I question whether any of them will be benefited by a shilling by the operation; and if Capt. Ennor had ceased to go his rounds, and we were both under the sod, I believe that mining would go on just the same as if we had never been engaged in it.

I cannot fall in with Mr. Symons's view that a man with seven years' practice would be possessed of as much knowledge as one who had had 40 years' experience. If he had said that some men with seven years' practice were better than some others with 40, it would have been more like the truth.

Now, a word or two for Mr. Wilkin before I conclude. If he had given us an illustration of a lode underground, instead of the boiler-lode, it might be better answered. It puts me in mind of a man, some years since, of whom it was said, that if were put on an island by himself, he would still save money. I contend that he could not save more than he took with him, as it was not likely he would find any there. So with the boiler: if it were fed from the water of a copper lode (having a great affinity with the iron), I should say it would be a maladive copper lode. Its constitution, of course, would be wrought-iron—a bad stratum, I think. I have seen a crust of salt 1 foot thick from the bottom of a boiler that had been fed with salt-water: I do not know what he would call that. I have seen a fire lighted underground to make a lode easy for breaking, but I never saw a fire lighted to make one.

There is another mystery in Mr. Wilkin's letter, where he says that he has seen a stone of black tin ore, of 1 cwt., which formed in a furnace. I have heard that black tin, after having been smelted a number of years, will go back into its ore state again; but it is the first time I have ever heard of black tin being put into a furnace, and coming out a stone.—Lydford, Dec. 6.

WM. HEATH.

#### CORNISH MINING AS AN INVESTMENT.

SIR.—The vast amount of mineral resources and hidden wealth of this country are inexhaustible, and of which no one can doubt; but the question may be asked, how is it worth of having large capitals expended in searching out those hidden treasures? And in the first place, is mining worthy of that investment? If so, what are the best principles for bringing out a mine before the public? Mining should be held forth to the capitalist in its true light, and without any colouring; should be placed under responsible management, in whom confidence can be reposed as to the laying out of capital in the undertaking, where the shareholders will have the satisfaction of seeing the explorations carried out in a mining-like manner, and their money spent legitimately in a fair investment. Such mining is worthy of notice, and the attention of capitalists.

No person, in bringing out a mine, can speak of the positive certainty of success; but some not only voice for the certainty, but the ruination of legitimate mining. A mining investment, brought out fairly, should be looked upon with a degree of confidence; and by the investor examining the district and strata in which such mine is situated, he can hardly fail, if he views these objects, and be wary in his laying out, to have a good percentage for the money invested.

In the re-working of mines, small capitals and time are mostly expended before bringing them again into a profitable state of working, and of which mines several are on the eve of returning prosperity.

The present depressed state of the mining market, with the high prices of material and labour, are serious drawbacks to mining, and which have tended to depress the finances of our leading and progressive mines; but several will, no doubt, conquer this, and the present is a very favourable opportunity for investment in mines. Capitalists will do well to investigate the qualities of the several mines, some of the which are in a fair state of working, and are now selling at a price which is not far above the cost of production.

In concluding these few remarks, I may say, from experience, that mining investments, when carried out on good and sound principles, have rarely failed in paying the investor something handsome on the capital embarked.

Dec. 7.

#### MINES IN CORNWALL AND DEVON.

SIR.—I am a constant reader of your valuable Journal, and, being an adventurer in mines, am glad to see statistical and descriptive particulars of the mines and mining districts in which I hold any interest. I peruse, with a great deal of pleasure, the reports to your Journal of the 25th Nov., containing a lucid synopsis of mining in the principal districts in Cornwall, that of Camborne and Redruth. It has occurred to me that Mr. Tredinnick, the author of the paper alluded to, would confer a benefit on the mining interest, particularly non-resident proprietors of mines, if he would extend his survey through the other districts of Cornwall and Devon, respecting which information is much needed.—Liskeard, Dec. 7.

AN ADVENTURER.

#### NEW ERA IN MINING—NO MORE LOSSES.

SIR.—Mr. J. Hitchens is quite mistaken about me, and I assure him he need not fear anything at all about me, as I am what Mr. Ennor, I suppose, would be considered—viz., an honest, legitimate miner, never having been connected with any other than legitimate mining in my life. My remarks about Mr. Ennor have been drawn forth by seeing his pompous letters continually thrust before the public. I pity the man whose modesty is so little as to allow him to arrogate to himself such extraordinary powers as to force the result of any mining operations, when Mr. J. Hitchens himself says—"Mining is known to be uncertain, and unforeseen events turn up." This we all know, as well as Mr. Hitchens; and it is useless for Mr. Ennor, or any one else, to say anything to the contrary. No, Sir; if Mr. Ennor were the man he professes to be, he would not need to work so hard to make himself known. Native talent, particularly of his extraordinary kind, would soon be appreciated, without his putting himself forward. Before I shall receive as a fact his having 100 mines to inspect in his "rounds," about to commence, I must know their names.

A MINE,  
Liskeard, Dec. 6.

#### DALRHIEW MINES.

SIR.—Some time ago there appeared in your valuable Journal a lengthened report of the above mines by Captain Skimmins. Being a manager of the adjacent mines, and within three short miles of Dalrhiew, I was rather surprised to learn, from the pen of a stranger, of the existence of such prospects, indicative of so valuable a mine in my immediate neighbourhood; and I concluded that the writer had been a little too sanguine in his expectations. However, a week ago I walked over and judged for myself, and was astonished to see the magnificent appearance of the mine: the old copper lode has the most metallic appearance I ever saw, and I have had some little experience as a miner in Cornwall, Devon, and Wales. I am constrained to admit that I was premature in forming my original opinion; and I now beg to add my humble testimony in corroborate of Captain Skimmins' very excellent report, and estimate that the mine will be worth 50,000*£*, subject to a trifling outlay. The lode is now in the end of the shaft, the width of which is not yet ascertained, but the lead ore discovered is 2 feet thick, and nearly solid.

I have not been employed to report on this mine, but am anxious to express my decided conviction that this work will be in the highest degree remunerative to the proprie

to stamping machinery.

Mr. EASY.—That depends upon the opportunity we have of purchasing it second-hand. Mr. Hackett has suggested that we might possibly find it advantageous to purchase a more powerful stamping

goods upon keeping our present engine at work for pumping purposes. Capt. Pascoe thinks our present engine will take us down to the 70 or 75 fathom level.

Mr. NICHOLAS HARVEY said, if these adverturers were to purchase extensive stamping machinery, it would necessitate a considerable expenditure. He knew of a small engine with boiler, and 12 heads complete, that could be bought very cheap. Twelve additional heads could easily be added; and he thought if the purchase could be effected, it was a good opportunity of commencing returns at a very inconsiderable outlay. By and bye, if they wanted additional stamping power, the engine he referred to could be used as a winding engine. He would, if the shareholders chose, with the further particulars of the machinery, call a meeting.

The CHAIRMAN said they were much obliged to Mr. Harvey for his advice and suggestion, and would esteem it a favour if he would obtain for them further particulars. The committee were very anxious to have the ore returned at the smallest possible expense; and the shareholders might rest assured that no trouble or caution should be spared in acquiring the necessary machinery on the most economical terms.

A call of 2s. per share, payable on or before Dec. 15th, was then unanimously agreed to; and a vote of thanks to the chairman terminated the proceedings.

## RHOSYDD SLATE COMPANY.

A bi-monthly meeting of shareholders was held at the office, 32, Moorgate-street, on Tuesday, the 3rd inst. — Mr. JAMES H. OLIVER in the chair.

The SECRETARY read the notice convening the meeting, after which the following report of the managers, and financial statement of the affairs of the company, were submitted:

### REPORT OF THE MANAGERS.

It is with much pleasure we place before the committee and shareholders the report of our two last months' workings, which have proceeded with regularity and satisfaction. The second level was completed in about a week or ten days after our last report; the miners have since continued the level in a more easterly direction, in order to intercept the clay vein in the line of level No. 1. The cutting from the bottom of the shaft for some distance has been through hard rock or spar, but has now reached the slate vein, being upon the clay vein, and the quality of the slate being very good. It is not our intention to detain the men on this vein, but to proceed with the level till we reach the clay vein, which we hope to do very soon; the cutting now being through slate is less difficult. The uncovering at the bone has continued during the two months, and a larger opening has been made. We have also a gang of men uncovering from the shaft and clearing away, by which means we shall remove the entire top to the depth of the second level. As it is probable that some observations may be made as to the time we take in developing the quarry, perhaps the most satisfactory reply may be that as we have nearly, or quite, one-fifth of the outlay to find, it will be some guarantee that the unnecessary delay will take place, but that every exertion will be made to bring the quarry into a paying state as soon as possible. This we shall most certainly do; and we again, with the most perfect confidence, assure all interested that we have, in Rhosydd Quarry, a most valuable property. — J. HARPER; T. JONES.

### Statement of Receipts and Disbursements to 5th December.

Dr.—Capital: £1,985 16. shares, paid up in full, including vendors (7000). £11,965 0 0	
11,965 16. shares, on which calls to the amount of 6s. per share have been made (less arrears).....	3,350 5 0
Sales of powder.....	172 14 6
<b>Total</b> .....	<b>£15,387 19 6</b>
<b>Dr.—Expenses at Quarry:</b>	
Wages, developing.....	£2163 5 0
Care road.....	360 8 10
Cutting bone.....	945 1 6
Level 2.....	562 11 6
Sinking shaft.....	95 0 0
Materials.....	693 0 0
Mate making.....	41 2 3
Powder.....	300 8 8
Salaries.....	268 13 4
Carriage of slate.....	6 17 9
<b>Purchase, including 7000 shares</b> .....	<b>£5,894 10 10</b>
Preliminary expenses, including law charges, printing, and advertisements, commission, office, furniture, &c. ....	8,000 0 0
Miscellaneous expenses, including committees' fees (to 15th March), secretary's salary, rent, travelling expenses, and sundries.....	483 18 4
<b>Total</b> .....	<b>£14,487 19 6</b>

The CHAIRMAN stated, that he had only just returned from the quarry, and was happy to report that the works were proceeding as rapidly as practicable. He was certainly greatly surprised at the magnitude of the quarry, and the extent of work done subsequent to his last visit. They had now completed the lower level to the shaft, and were extending the same to the clay vein, which they would probably reach in the course of two or three months. They were also uncovering from the bottom of the shaft in the direction of the first level. On the whole, he considered their prospects were satisfactory; and, from the different opinions which he had elicited from practical men in the neighbourhood, he felt assured the undertaking presented every feature of success.

A lengthened discussion took place as to the propriety of sending a London engineer to inspect the property, and advise as to the mode of working, but it was afterwards resolved, — That the managers be requested to contract all works not absolutely necessary for the purpose of bringing the quarry into a dividend-paying state as soon as possible.

## GENERAL MINING COMPANY FOR IRELAND.

The eighteenth half-yearly general meeting of shareholders was held at the office of the company, No. 2, Burgh Quay, Dublin, on the 8th inst., Sir JAMES MURRAY in the chair.

The meeting was far from being numerously attended, the proceedings having commenced with some five or six shareholders being present, including the chairman and members of the board, and the whole affair appeared to excite but little interest, save the bickerings and personalities indulged in by the chairman, and charges with disclaimers on the part of Dr. Brady, while Mr. Powell, one of the auditors, justified his refusal not to sign the accounts as correct.

The SECRETARY (Mr. Hamill) read the following report of the directors: —

A detailed report can scarcely be submitted by your present directors, in respect that up to the closing of the present accounts they had only been about six weeks in office. They may state, however, that the debts contracted and expenses laid out did not occur under their management. The time of the board had been in a great measure taken up in investigating the state of the company's affairs. They have to notice that great losses had been sustained by advances to tributaries and tuftworkers. The losses thus sustained amounted from 1st July, 1853, to Oct., 1854, to 25,242 19s. 3d., of which sum 22,567 0s. 3d. was the result of advances made to the men during ten months by the late agent or mining captain, and before the present directors came into office. The sum of 2,397 10s. 9d. occurred before the employment of Capt. Hamby. The board, in the midst of many obstacles, have been carrying on the permanent work of improvement. Levels are being driven, new roads constructed, and the engine-house and engine nearly completed, as will be more fully explained by the chairman. The half-yearly accounts are herewith laid before the shareholders.

The CHAIRMAN then proceeded to read a written address, to the following effect: —

After expressing the desire on the part of himself and his co-directors to put the meeting in possession of every information touching on the past proceedings of the company, as well as its present position, the chairman observed that it was only in Aug. last that the present directors came into office. The board, seeing the necessity of immediately ascertaining the precise position of the affairs of the company, at once proceeded to investigate the past, and, by personally visiting the mine, determine the course to be pursued for the future. It appeared on enquiry that the halvans, which had been represented as being of the value of 10,000*s*, were estimated as being only worth 410*s*, after deducting the dressing cost. Proceedings had been instituted by the men for the recovery of alleged claims, but in all cases they had been unsuccessful, and had subsequently petitioned for forgiveness; the company have, moreover, lost 35,000*s* by advances improvidently and improppriately made by way of sublet, which had tended much to the demoralising of the habits of those employed. However, now that new officers had been appointed, and a new system adopted, he had every reason to believe that matters would progress alike satisfactory to the employers and the employed. The financial affairs, as conducted, were far from being satisfactory, and until a change of the company into their serious consideration, have determined on applying themselves to the question of a call, which should have their best attention. The chairman concluded his address by reading a report, or letter, from Capt. Matthew Francis, who it appeared had visited the mine, and reported thereon in Aug. and Sept. last, and then expressed his belief that in three or four weeks the mine would be in a comparatively perfect state as regarded surface works, erection of machinery, &c. Capt. Francis's report referred to the Gwynedd Mine, in Wales, with which he had been connected, and which had been most highly productive, and to which he compared the property of this company, giving, however, a preference to the latter.

Dr. BRADY considered the report as very meagre, and affording little or no information. He denied in the strongest manner that the late board of management had used the money of the shareholders improperly; but, on the contrary, he contended that they had on all occasions used their utmost efforts to improve the property and prospects of the company. Capt. Francis had been employed by the late board for six months. The worthy proprietor having indulged in some remarks on the "pounds" of which might have emanated from him, yet he had nothing whatever to do with them since Nov., 1853; up to which period the expenditure incurred did not amount to more than 179*s*. 10*d*. while four times that sum had subsequently been expended.

Mr. MILLAR, as one of the directors, did not feel called upon to go into past affairs. Dr. BRADY wished to know whether the "4-track" system was in practice; or, in other words, whether the people were paid in meal instead of money.

The CHAIRMAN stated that the "orders" were certainly given for supplies of meal, for which the company was responsible; but there was nothing of the kind supplied direct from the mines. If the miners had the money it would be mispent, and the miners paraded for their benefit. Orders were given on shops by tickets given to the workers.

A lengthened discussion ensued on the subject of the system heretofore observed, of making advances to the miners by way of sublet; in the course of which Dr. BRADY observed, that to designate the amounts so advanced as debts owing by the men, when no results in the shape of ore had been obtained, was a species of humbug as debts owing accrued; in reality there was no such thing. Men had been set to work on bar-gean or tribute without a speck of ore in the end; and, consequently, if no ore was returned at the end of the month, the money so advanced to the men was a cost on the mine, chargeable to trials or explorations; while, where a discovery was made, both the cost of the day and the men employed were benefited.

Mr. FARNHAM (auditor) stated that the value set upon the piles of halvans, when reduced and made marketable, was 10*s*; that it was calculated they would yield 4*s* per ton, and that the cost of reducing and rendering them fit for market might be estimated at 2*s*. per ton.

It appears the quantity of lead ore at surface does not exceed 4*s*. per ton. The two last sales of copper are yielded only 4*s*. 1*d*. and 4*s*. 1*d*. per ton, while the payment to tributaries for raising was 4*s*. per ton, and a like amount paid for dressing cast and freight, thus making an absolute loss of nearly 2*s*. 10*d*. per ton.

Mr. EVANS (a director) stated that, for his own satisfaction, he had taken a parcel of 1*s*. 6*d*. of lead ore prepared for shipment; this, after having been carefully dressed under his own immediate supervision, produced only 4*s*. 6*d*. or 50 per cent.

A question having arisen as to the accounts having only the signature of one auditor attached thereto — that of Mr. Powell, although printed, having been subsequently

erased — an explanation was afforded in the absence of that gentleman; that he had despatched his signature as the ledger had only pencil entries, and, moreover, that the entries in the ledger and the bankers' pass book did not agree. Subsequently, Mr. POWELL having attended the meeting, and having apologized for his absence, and apparent want of courtesy, stated at some length his reasons for not appending his name to the document, which had been submitted to the meeting. The fact was, that there was not a single cash voucher in a state for the auditor to inspect or pass; the entries in the ledger, even the headings, were in pencil, and which having been once passed by the auditor might possibly be altered, or changed; that the books were not balanced or closed; that in the cash-book of the National Bank, he found that the balance did not correspond with the books of the company, in one case there being a balance against the company, while on the other it would appear there was a credit; this upon being pointed out, and leaving the book at the bank, having expressed his determination not to be a party to passing the accounts in such form, had in some measure been rectified by the payment of a certain sum by the chairman, which he complained was not the duty of the secretary or directors of the company to see that the entries in the ledger and company's books agreed with those of the banker's. He found, moreover, that a draft, or draft, had been drawn by the chairman with his own signature only attached, without that of a co-trustee, or being countersigned by the secretary, which drafts did not appear on the bankers' books, and which had been inconsiderately cashed by the bankers. He referred more particularly to one cheque, drawn for 30*s*. on the National Bank of Ireland, and signed by the chairman alone. When he (Mr. Powell) asked for an explanation, he was told that this entry had nothing whatever to do with the company's affairs, and ought not to appear in the banking-book. He did not charge that gentleman with any intent to misappropriate the funds of the company, but it was the irregularity of which he complained, as he felt it was the duty of the secretary or directors of the company to see that the entries in the ledger and company's books agreed with those of the banker's.

The CHAIRMAN said they were much obliged to Mr. Harvey for his advice and suggestion, and would esteem it a favour if he would obtain for them further particulars. The committee were very anxious to have the ore returned at the smallest possible expense; and the shareholders might rest assured that no trouble or caution should be spared in acquiring the necessary machinery on the most economical terms.

A call of 2*s*. per share, payable on or before Dec. 15th, was then unanimously agreed to; and a vote of thanks to the chairman terminated the proceedings.

the point where all the branches yielding the strongest ores, with the north lode, will intersect the main lode. — G. RYAN: Dec. 2.

ROLENOWE. — The 50 and 40 fm. levels east are progressing favourably; the lode in each level is about 2 ft. wide, with a kindly appearance. — W. BONNER: Dec. 2.

BORINGDON CONSOLS. — The 24 fm. level west is secured to the present end, and we are putting a stop to Gilbert's rise to the present end, which when completed will cause better ventilation, when we shall commence driving the end. The stopes to the east of Gilbert's rise are yielding some good saving work. The 24 east is a little harder for driving; this level is laying open profitable ground. We have commenced sinking Am's shaft, which we shall get down as fast as possible. — W. GODDEN.

BRONFLOYD. — On the 1st instant, by cross-cutting, we cut to the principal part of the north lode; it is composed of hard ground, full of spar, with some spots of ore; but we have not yet seen the north wall. We see the strings of ore for a length of 15 ft.; the point of the cross-cut is 40° west of north. I hope in a day or two to see the north side, so that we may know exactly the point of the lode. The south lode is very near the same, but is dipping very fast north; its point at present is 25° west of south; the length of the driving from the north cross-cut is 10 fms. 2 ft.

BRYNTAIL. — Since I reported on the operations last week, the new lode has been intersected by a cross-cutting in the 10 fm. level, and I am proud to say that it has greatly exceeded my anticipations in point of value. In consequence of the lode dipping north, and the cross-cut driven in that direction, I cannot yet see the lode so low as the bottom of the level, but in the back it is fully exposed to view, where it is worth at least 30*s*. per fathom. It produces splendid specimens, composed of large cubes of lead, accompanied with carbonate of barites, sulphate of barites, &c., some of which I shall forward to the company's offices, with samples of the barites taken from various parts of the deposit, of which from 3000 to 10,000 fathoms are visible. The heavy and incessant rain during the past week has so increased the water in the shaft as to cause the suspension of sinking; this will undoubtedly be drained by driving the 10 fm. level. I have, for the present, put the men to stop west of the shaft, 3 fathoms from surface; here we find the lode very good, and occasionally producing stabs of solid ore, nearly 1*lb*. each. The lode underneath this point is much better; this we shall stop as soon as the shaft is communicated with the 10 fm. level. The tributaries, still working the bank of the 12 fm. level, are now raising a little ore; in fact, all the men employed underground are now breaking ore, more or less. — JAMES ROACH: Dec. 6.

BUTTERDON. — The shaftmen have been prevented from completing the fixing of the lift, &c., in consequence of our being disappointed in obtaining the necessary castings. We have now put them to drive north on the course of the lode in the 30 fm. level. We are still cross-cutting east in the 30, where the indications are much the same as last reported. — W. JENKIN: Dec. 5.

CALSTOCK UNITED. — The sump-shaft is sunk to the 50 fathom level, the lode is without alteration since last report; the shaftmen are now cutting a plat in 50 fm. level. Should we have your authority to draw up the plait below the 42, in Caroline's, the same will suit our purpose to secure the shaft down to the present depth, and to sink to the next level. We will consider all points worthy of notice, and give a detailed report for the general meeting to be held on the 7th inst. — JOHN KENNICK; WILLIAM COOKE: Dec. 2.

CALSTOCK CONSOLS. — The ground in the cross-cut north to the Zion lode continues favourable for driving; it is of a light blue colour, and contains branches of ore; all the branches laterally intersected dip to the north with the killas. The south underlie lode, in the north cross-cut, is increasing in size; it is at present mixed up with killas, spotted with copper ore. In driving south-east from the level on the north underlie lode, a small east and west branch has been passed through on the eastern side of the small cross-course; the ground at present is wet, and troublesome for driving. — W. B. COLLAM.

CAMBORNE CONSOLS. — The 33 fathom level cross-cut, north from Tindal's shaft, progresses satisfactorily. The other levels are much the same as last reported.

CARADON CONSOLS. — During the past week our shaftmen have sunk about 3 ft.; in so doing they have met with another branch of ore dropping southwards, which, no doubt, will eventually fall into the lode. The men in the 37 cross-cut, north have driven 3 ft., and in the 27 south 2*ft*; the ground continues just as it has been: I hope soon to reach the lode, when I have no doubt the droppers will enrich it; and in pursuing this course, I can assure you I have the greatest confidence that ere long we shall have a good mine. — Dec. 4.

CAROLINE WHEELED SPORER. — Saturday last being our usual setting-day, we set the following bargains: — viz., the adit level to drive by six miners, the month, at 5*s*. per fm., the lode about 2 ft. wide, producing good stamps work. No. 1 stope, in back of the adit level, by six miners, the month, at 5*s*. 10*d*. per fm.; the lode here is about 18 in. wide, yielding splendid work for tin. No. 2 stope, in back of the adit level to 18*s*. 10*d*. per fm.; the lode here varying from 1 ft. to 1 ft. 3*in*. wide, producing good work for the stamps; the machinery is looking well. We hope in a short time to be in the market with a batch of tin. — WILLIAM WILLIAMS: Dec. 7.

CARRACK DEWS UNITED. — In my last report I informed you that we were in fork to the 10 at Battery shaft, and that we were then engaged in clearing and securing the level. This we have now accomplished, and find it to be driven 21 fms. east of the shaft. The men have now taken up the New Linares; his visit to the San Fernando, and his report upon that mine was published. The New Linares, like other lodes in the district, had been, and could be again, made productive. He could not give any detailed report, or speak more particularly as to their property, but the indications at surface were similar to those at San Fernando.

Mr. BEATTIE enquired whether Mr. Hitchins had been over the surface works?

Mr. BEATTIE said he was partially over them, but it was not a very comfortable thing; the chokers and lever then raged, which had so materially interfered with the progress of their works, and not having more nerve than other people, he came away as soon as possible; but, as far as he saw, the surface works were good and substantial, and would answer the purpose very well. He had given a hint to the shareholders, advertising sending out a medical gentleman, and would recommend that the mines in the neighbourhood should join in the expense; indeed, he was satisfied a considerable saving would be effected by working together, as a fair establishment could be carried on much cheaper, in proportion, than two or three small ones. And this would apply more particularly to smelting works, where, for a time, the ore at one mine might run short; but, if two or three were united together, they would be always kept at work.

The proceedings then terminated with a cordial vote of thanks to the chairman.

## Mining Correspondence.

### BRITISH MINES.

ALFRED CONSOLS. — The lode in the 130 fm. level, 9 ft. east of Field's engine, is about 3 ft. wide, worth for copper ore 36*s*. per fm.; at this point the south lode appears to be separating from the north lode, containing a good branch of copper ore from 6 to 12 in. wide, worth from 7*s*. to 10*s*. per fm.; since the improvement in this level, No. 1 winze, sinking under the 130 east of this shaft, has been drained perfectly dry; this winze is being sunk 4 fms. under this level, and the lode in the present bottom is worth for copper ore 20*s*. per fathom; this winze is about 12 fms. east of this shaft; the lode in the 120 at this point is unproductive; the south lode in this level, east of this shaft, is worth for copper ore 40*s*. per fm.; this lode in No. 2 winze, sinking under the 130 east of shaft, is worth for copper ore 20*s*. per fm.; this lode is 20 fms. from the 120 east of shaft, and 7 fms. east of the 120 end, is worth for copper ore 24*s*. per fm. The tribute department looks well. The 120 has been driven through a continuous course of ore for 24 fms., worth 130*s*. to 150*s*. per fm., and looking at the great improvement that has taken place in the 120, I consider the mine has not had a better appearance for a considerable time. — M. DUNN: Dec. 4.

ALTARNUN CONSOLS. — Since last report we have driven the west end in the 20 fm. level about 8 feet beyond what I stated to be a cross-course, and find it to be another side, running about 45° or 50° south-west; the lode is 18 in. wide, producing good stones of tin. We have also cut the slide in the east end in the same level, but cannot say much about the lode before we have driven the end a little further on.

We have completed the burning-house, and shall in the beginning of the coming year we shall go to market with a

DEVON BULLER.—Since my last report, in driving through the lode we have discovered a north wall, about 6 ft. apart from the south; I am not satisfied that it is the north part of the lode, as we have broken the wall and find ore to be further north, which will be proved in a few days.—W. NEIL: Dec. 7.

DEVON UNITED.—The lode at the engine-shaft, sinking under the 52 fm. level, continues its size and regularity, with occasional good stones of lead ore. We have cut a large stream of water in the deep adit level, and the ground appears to be changing for the better; we have two men here, we shall, therefore, progress as speedily as possible to intersect the great north copper lode.—A. BRAY: Dec. 4.

DUHRODE.—The ground in the north cross-cut is more favourable for driving; continue to intersect branches containing yellow and black copper ore and munde, it is evident from the strong indications that the lode is not far from us. The lode in the cross-course is producing fair quantities of ore, and has every appearance of being lasting and productive. The lode on the south counter is looking remarkably well, and is turning out good grey stuff. The general features and prospects of the mine look very encouraging and satisfactory. The new wheel and stamps are nearly finished, and will be put to work on the return of Mr. Walker, the engineer, who is expected early next week.—Dec. 4.

DUNSLY WHEAL PHENIX.—We are still breaking good work for tin from the western stopes. All other parts of the mine are just as last reported.—J. SPARO:

EAST ALFRED CONSOLS.—In the deep adit, east and west from Polkinghorne's cross-cut, we have driven a great many fathoms each way, through a kindly lode, promising copper, blonde, and munde, which continues much the same in the present ends. In the Polkinghorne adit west the lode is about 2 ft. wide, composed principally of prian and spar, impregnated with copper, blonde, and munde. I hope to have the pleasure of informing you of some very good discovery in the mine. We have recently saved from the different levels about 2 tons of pretty good copper ore, which we shall offer for sale at our next ticketing for North Roskear and North Croft. —J. VIVIAN: Dec. 2.

EAST CARADON.—In driving the 40 south there is no change in the appearance of the ground since my last report. In driving east in this level, on Mark's lode, the lode is 2 ft. wide, composed of quartz, peach, munde, and flocan, with occasional spots of copper ore; both the lode and the ground by the side are very good for driving. In sinking William's shaft, we have still a part of Simon's lode in it, composed of gossan and quartz; the granite by the side is rather stiff.—J. S. COOMBE:

EAST FRONGOCHE.—The shaft is now about 6 fms. below the 20 fm. level; during the past week the men have been two days putting in timber to secure the ground each side of the shaft, consequently there has not been so much done in sinking. I regret to say we are not making that progress in sinking as I anticipated we should after having the plunger-lift to work. During the past month the bottom lift has been very often out of order, whether through neglect of the men or not having a thorough knowledge of sinking with a lift, I am not prepared to say.—T. PASCOE: Dec. 4.

EAST POLGOOTH.—During the past month the shaftmen have been engaged in putting in the bearer and cistern, fixing the standing-lift in the 50, and completing the engine-shaft to sink below the 50. This being done, we hope to have no hindrance until we reach the 60. The ground in the shaft continues much the same as last reported; we hope to sink not less than 2 fms. 3 ft. per month, and in that case shall reach the 60 in about 10 weeks from this time.—Dec. 4.

EAST WHEAL GEORGE.—The sumpmen have been engaged the greater part of the week in sending down lift, cutting ground, putting in rods, &c. The ground in the shaft is just as last reported on. The lode in the 44 fm. level west maintains its size, being composed of more spar than usual, with strings of ore; the lode in the 44 fm. level, east of shaft, is large; 15 in. of the south part is composed of munde, spar, and spots of ore; the water is still very strong in this end. The pitches are looking much as usual.—Dec. 4.

EAST WHEAL ROBERT.—This extensive sett is situated in the parish of Sampford Spiney, about four miles from Tavistock, and is bounded by and joins the following mines:—West Sorridge, Sorridge Consols, North Wheal Robert on the west, East Wheal George and Wheal Laura on the south and east, Great Sorridge, East Sorridge, Devorn Burrara, Wheal Surprise, and Wheal Friendship, on the north, and the Walkham River on the east, and is held by a deed for 21 years from October 1854, granted by the Rev. T. H. Parry, at 1-13th dues. Here I need not dwell, but may say the lodes from the west are being very profitably worked, as also East Wheal George, Wheal Laura, and Wheal Friendship; however, I refer you to the *Mining Journal* for more particulars. The stratum is a very congenial one for the production of copper ore, being a light blue clay-slate. This sett joins North Wheal Robert on the West, and has upwards of 1/2 mile on the course of the lodes from east to west, and about 600 fms. from north to south. There are many important points connected with this mine, two of which are in the east and west parts of the sett. There are two very high hills, where adit levels can be entered both from east and west, at a depth of from 50 to 60 fms., on the course of the lodes. Another very important feature is, the River Walkham is a never-failing stream of water, and can be made available for pumping, crushing, drawing, stamping, &c., to any extent. I might say there is also a large stream of water in the western part of the sett, that can be made available for the same purposes. East Wheal George should ores to the amount of 70000t, at a depth of 45 fms. Wheal Laura has made large returns, and whose lodes traverse this sett. Sorridge Consols and North Wheal Robert lodes pass the whole length of this sett; Great Sorridge and East Sorridge lodes pass just to the north. Sorridge Consols and the North Wheal Robert are producing very large quantities of copper ore. Great and East Sorridge will not doubt make very early returns, which shows that the locality, although in its infancy, is for a great distance around mineralised. The known cross-courses and the elvan course traversing this sett will, without doubt, be very beneficial, as in three cases out of four, junctions and intersections are known to improve the east and west lodes. I am informed that this sett contains from 10 to 12 east and west lodes, and only about four miles from the shipping quay, where minerals and materials can be easily conveyed. Then, taking the many advantages into consideration this sett possesses, I am bound to give my frank opinion that East Wheal Robert is a good speculation, and worthy of a vigorous trial, by which I have every confidence that the shareholders, ere long, will be repaid for their outlay. I would recommend your losing no time in laying open your lodes as early as possible, so as to ascertain their size, quality, &c., and at once extend levels into the high hills before alluded to, especially in the western part of the sett, adjoining North Wheal Robert, being only about 100 fms. from the latter's engine-shaft, at the eastern boundary. In conclusion, I can only say the district has every appearance of becoming a large and productive one for copper ore. I think it will be a second Camborne, though so very recently begun. I have a good opinion of the district for many miles round, and must include within its limits, East Wheal Robert.—Nov. 25.

I might say, the Sorridge Consols and North Wheal Robert lode is laid open in several pits by coetaneing on Huckworts Common, where the lode shows a splendid back of gossan, and deserves a vigorous trial.—J. HODGE: Nov. 25.

EAST WHEAL RUSSELL.—We have drawn to surface our 22-fm. drawing-lift, fixed the bed, casing ladders, &c. We shall resume sinking Hitchins' shaft in a few days, and shall put it in order by the latter end of the week. We have no important change in the 5; the end is still producing grey ores and malleable. We are progressing with Homersham's shaft, with all possible speed. Our machinery is all working well.—W. METHERELL: Dec. 7.

EAST WHEAL VOR.—The 50 fm. level remains unaltered in value. The 50 fm. level east has much improved, and it is worth 150 per fathom. The 50 fm. level back is worth from 130 to 200 per fathom. The 40 fm. level bottom stopes are at present poor. In the 40 fm. level backs men are opening ground to work for more advantage. Sarah's pitch has been re-set at 100, 6d. in 1'. The burning-house I hope to get completed some time in the ensuing week. We expect a decent sampling for the smelting-house in the Christmas week.—D. STICKLAND: Dec. 4.

ESGAI'R MWYN.—Our operations are progressing favourably. The 25 end west has a good ore lode, producing 3 1/2 tons per fm. The end west from No. 1 cross-cut is without alteration; it is in quest of the ore under the Hospital. The 26 end west produces good stones of ore, and hope this month to get under the ore in the stopes; when these two points are noted we shall take the stopes stuff from the 15 through the 20, instead of throwing it up to the 15. Altogether the mine is gradually showing improvement in its various parts, which I trust next month will still further increase. I hope to dress this month 25 tons, with favourable weather.—J. TAYLOR: Dec. 1.

FEW DONALD.—There is no alteration in the Antimony level, driving west, since last week; the stopes in the bottom of this level at present are not looking quite so well as they did, by reason of coming close to the end of the ground, as far as the branch of lead extends. We shall commence sinking next week on this lode; and by present appearance we have a fine prospect in view. The lode is looking well to commence in the level; the lode south of this, driving west, is poor at present; the level going east, on this lode, is worth 3 cwt. of lead ore per fm., and has a very promising appearance. There is a great improvement in the Smidley lode, driving west, since last week. I shall not say anything about its value until another week; but am happy to say the lode is looking well. The houses are not covered in, as we are a little short of late. I was intending to carry on the lode to the Antimony lode; but as the weather is so bad, I do not see we can make much improvement at surface for a month or two.—J. MUFFETT: Dec. 2.

GARREG.—We are progressing very favourably with our new shaft, and have got through the gravel, to-day, on one side; the shaft is into the blue clay shale, and I hope shortly we shall be sinking in solid ground. I am happy to inform you that the west end in the 40, driving westward, is very much improved, the lode is opening, and we have at the present a course of lead ore 2 1/2 in. wide; this lode shows a very healthy appearance for lead, and I hope will shortly prove a productive one.—W. RAMSEY: Dec. 7.

CAWTON UNITED.—We have completed all the shaft work to the 24 fm. level, and by Saturday shall have the water out from the 36 fm. level, and commence driving.—H. HORNWELL; J. MITCHELL: Dec. 7.

GLAUSSEVIN.—We have extended the adit level westward several fathoms, with a view of intersecting the two lodes near the Mandine Farmhouse, but as yet have only met with small branches of spar, containing spots of munde, blonde, and lead. These lodes at the surface have a promising appearance, and the strata is a light grey limestone and slate, similar to that in which lead is found in this locality; but in the adit we have a hard, dark grey limestone, that in the deep adit being covered with bituminous matter, which I think unfavourable for the formation of lead. We, however, intersected our lode in the deep adit before we got into this unfavourable ground, on which it may be advisable to drive for a few fathoms; but as I am inclined to think that the lodes on the hill are disordered in depth by the hard ground, and that the branches in the adit are parts of one of them, I should not advise any further outlay in driving in that direction. We have driven a few fathoms on the Paradise lode, which is on that part of the sett granted by Mr. Jones, where we find it to possess a very favourable appearance; it is several feet wide, and in a stratum precisely similar to that in which the deposit of lead is found at the Great Welsh Mine. I think it is worthy of further trial, and have forwarded a small box of stones, which will enable you to form a better idea of the general character of the lode than can be described in a report. The stones were broken at a depth of 3 1/2 fms. from the surface, the whole lode being of the same character, in connection with a large quantity of flocan and gossan.—W. H. REYNOLDS.

GREAT ONSLOW CONSOLS.—There has been no change to notice in the 72 west during the past week. The lode in the 72 east has improved. The lode in the 60 west is worth for 60 ft. per fathom; the lode in the 45 fms. over this level is worth for 140 per fm. The lode in the 45 end east is much the same as last reported. We expect to get the crusher to work some time next week.—G. RICKARD: Dec. 6.

GREAT SORRIDGE CONSOLS.—Hitchins' engine-shaft is sunk from surface in a most splendid stratum—in fact, everything that is congenial for copper. At present this shaft is stopped, owing to so much surface water, and we have not the men to drive a cross-cut from the old men's adit to the shaft, which is being driven 60 fm., and have about 4 fms. more to drive; which, when hoisted, I have no doubt we shall be able to take up all the surface water, which will enable us to go a moderate depth with the little engine we are about to fit. We have a sump-house

erected, saw-pit built, and carrying out all other necessary operations (in my opinion) for a great and good mine.—T. METHERELL: Dec. 7.

GREAT CRINNIS.—I have had a survey through the entire mine, and find the objects in the copper department much the same as last reported. We have six tribute pitches and 12 tuitwork bargains at work upon the copper lodes, and 12 tribute pitches upon the silver courses. I am happy to say there is a marked improvement in this department, with plenty of ground open for tributes, as soon as we can get the men; we employ all good men who offer themselves, and would be glad to have 100 more than we have; and I think it would be well to put an advertisement in the *Journal*, to make it known to miners that there is plenty of employment for good tributes in Old Crinnis, where I doubt not we should soon have as many as we could find room for. We have just sold to Messrs. Vivian and Sons, a tributes' parcel of 100 yards cross-cut, east of Trewreck's, we have intersected a string last month which we believe to be the same we are working on at the 110 yards level, but I get to say it is poor at this point; we continue to cross-cut the eastern strings. In the 50 yards level, at Trewreck's, is looking promising, and the ground is comparatively easy; the other end in this level driving south, on an eastern string, is worth 8d. per fm. The rise in back of the 110 yards level, at Trewreck's, is over the new pitches there, and will open this unexplored ground; at present it yields a little ore to pay rising. The 50 yards level, south of Higher shaft, yields a little ore there are about 9 yards to meet Jones's string, consequently this is a favourable trial to extend it further; the string in it at present is large and open. We have a pit to cut at the bottom of Trewreck's to the shaftmen for 15d. per fathom, of which we shall prepare again for sinking, and also drive north and south on the side of Cefn; these ends, which are suspended while the pit is being cut, have yielded little worth of ore in the last month, although not looking so well at present as they have been. We have set 24 pitches, employing 81 men and 2 boys, at tribute varying from 5s. to 13s. 4d. in 1', so we expect to have greater returns, while we have still a great number on tuitwork to explore new ground. Our new floor will be completed again the next sampling, when we expect to sample 120 tons. As last reported, we are doing nothing on the waste ore, but have 100 tons ready for shipment as soon as the weather permits.—Dec. 4.

GREAT TREGONE CONSOLS.—The ground in Hobber's shaft is still favourable for sinking, and I am happy to be enabled to say the lode is considerably improved, both in size and quality; and judging from the gradual changes that are taking place as we go down, together with the most splendid stones of black, grey, and yellow copper ore, I have reason to believe we are not far distant from a rich course of copper. I stated in a former report that in sinking this shaft we were frequently intersecting branches dipping towards the lode. I have now the pleasure of saying that one of those branches has formed a junction with the lode, which has caused the present great improvement, and I have to inform you also that we have similar branches of the same nature dipping towards the lode, that will fall into it at a greater depth.—JOHN SPARO.

GREAT WEST SORRIDGE.—We have cut the lode in Pennington estate, have seen it 6 ft., but cannot say the exact size; it is a most splendid lode, composed of capel, gossan, and stones of beautiful black and yellow copper ore; in a few days we shall be able to say more about it. It is the most important discovery that has been made in the locality for a long time, bearing out the opinion of practical men, that this neighbourhood will be a second Camborne, and that are long tall steam-engine chimneys will be smoking on those hills, and ore coming to the quays for shipment. It is worth the notices of practical miners to visit the locality, and judge of the prospects for themselves.

GREAT WHEAL BADDERN.—We have cut a large stream of water in the 46, east from new engine-shaft, which has drained the water from the stopes in the bottom of the 40. Although our sampling for the last month was not so much as we expected, in consequence of the water being so quick, it is now drained by the 46, and we hope to get on regular in future. The lode in the 40 west is very much improved, and producing saving work for lead; I think this part of the mine eventually will turn out very productive. The different levels, shaft, and tribute pitches are progressing favourably.—J. ROGERS: Dec. 3.

HALAMANNING AND CROFT GOTHAL.—Park Lode: Ommannay's engine-shaft is sinking under the 90, for bearers and cisterns; the lode is 5 feet wide, with good stones of ore. We shall do little in the 90 this month, on account of fixing our pitwork in the level. In the 90 west we are driving a cross-cut south, the lode being driven by the elvan-course. In the 70, driving west of Bank shaft, the lode is 6 feet wide, worth 11d. per fathom. In the 60, driving west of Higher Hill shaft, the lode is small and unproductive. At Orchard shaft, we are sinking under the 60; the lode is 5 feet wide, worth 10d. per fathom. In Eade's winze, sinking under the 52, west of Orchard shaft, the lode is 5 feet wide, worth 7d. per fathom. In the 52, driving west of this shaft, has drained the water from the old working west of the shaft, but it being covered with slime and rubbish, we can say but little about it until we have cleared the next shaft, west of engine-shaft.—Bully Lode: The rise in the 60 west is worth 8d. per fathom. The 52, driving west on same, is worth 5d. per fathom. Our sampling for last month was 263 tons of copper ore.—J. VIVIAN: Dec. 4.

HAWKMOOR.—In the 40 east we have cut a large stream of water in the 46, east from new engine-shaft, which has drained the water from the stopes in the bottom of the 40. Although our sampling for the last month was not so much as we expected, in consequence of the water being so quick, it is now drained by the 46, and we hope to get on regular in future. The lode in the 40 west is very much improved, and producing saving work for lead; I think this part of the mine eventually will turn out very productive. The different levels, shaft, and tribute pitches are progressing favourably.—J. ROGERS: Dec. 3.

HAWKMOOR.—In the 40 east we have cut a large stream of water in the 46, east from new engine-shaft, which has drained the water from the stopes in the bottom of the 40. Although our sampling for the last month was not so much as we expected, in consequence of the water being so quick, it is now drained by the 46, and we hope to get on regular in future. The lode in the 40 west is very much improved, and producing saving work for lead; I think this part of the mine eventually will turn out very productive. The different levels, shaft, and tribute pitches are progressing favourably.—J. ROGERS: Dec. 3.

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wide, of good grey ore; and to the south, there is also a good branch of ore. In the 10 fm. level east the lode is 2 ft. wide, every foot and unromising; we have stopped this end for the present. In the adit and east the lode has improved, since this last; there is a branch of ore 1 foot wide in middle of end. In the cross-cut, north from adit level west, we have not yet discovered the lode. In the winze below the adit, there is a branch of good ore in the bottom. The steps in the back of the adit are as last mentioned, producing 2½ to 3 tons per fm.

**TRAVIST.**—The shaft sinking from surface on south lode is now down 10 fms. 4 ft. and a good gossan being in the east end, I have placed the free labourers to drive a few fathoms on it, instead of sinking the shaft any deeper for the present.

One raised in October, 50 tons; precipitate, 6 tons.

#### UNITED MEXICAN MINING ASSOCIATION.

**Guadalajara, Oct. 27, and City of Mexico, Nov. 1.—Mines of Jesus Maria y Jesus.**—The operations of the month are reported as being very satisfactory; the indications for the future present encouraging appearances. The principal works carried on have been the fronts of San Juan in the north, a new level shaft-level, and the vertical pozos of San Francisco Javier. In the front of San Juan 8½ varas have been driven. The vein, which was reported in it has not improved in its aspect, has fulfilled the promise then held out, and is now in fair ore, which becomes better as we continue to advance. This is in itself sufficiently flattering; but is the more hopeful when it is borne in mind that this front is the most forward point leading into our own territory, and that, with the exception of the 30 varas speculated laterally on the vein from the pozos of San Hilario, we have the whole ground apertaining to the mine yet to explore northwards until we reach the neighbouring property of Los Lenes. A new pozos has been opened below this level about 8 varas further north than where the inclined pozos of San Francisco Javier intersected it; and here we have cut excellent ore, which appears as if likely to continue. It is highly encouraging to find that the mine promises to yield in depth, as well as in our lateral workings, and equally so that the ley improves as we go down. The vertical pozos of San Francisco Javier has communicated with the level of San Juan, and the work, consequently, come to an end. The produce of the past four weeks, delivered to the haciendas of Dolores, has been 350 cargas—the value of which may be roughly estimated at \$4000. The water has been somewhat troublesome, but not so much so as to seriously impede the operations; still, should the continuance of the level of San Juan develop the productiveness of the vein to the north, it is conceived that not only the utility but the necessity of a new shaft will be placed beyond a doubt, as affording the cheapest and most effectual means, both of extraction and exploration.

**MINE OF TRINIDAD.**—The speculations of this mine during the month has not produced any positive results, nor developed anything of a flattering nature. In the pozos of El Carmen, 9½ varas have been driven in a poor vein, with occasional stones of ore of a low ley. In the pozos of San Luis the thread of ore, mentioned in the last report, completely disappeared; the work was, therefore, stopped, and the workmen transferred to the front of San Andres. In the pozos of San Alfonso the ore has also given out; but this work will be continued to serve as the high road down the mine. We have advanced in it during the month 10 varas. The workmen from San Luis having been placed in the front of San Andres, have driven in that work 10½ varas northwards towards San Vicente, the boundary line of which mine is about 30 varas distant from our furthest advanced point. The lode in this level looks very promising, and contains some stones of fair ore.

**Zacatecas Claims—Indemnity.**—The receipt at Zamora of a further sum of \$3832 92 is advised towards the liquidation of these claims. At Vera Cruz, \$589 87 has also been received, in addition to \$1000, credited to the agents against dues payable by them. Capt. Farrell remained in the capital, pressing payment of the arrears due.

**Finances in Mexico.**—The usual monthly statement of receipts and expenditure brought down to 21st October, shows an actual cash asset of \$4530 6.

**Quicksilver.**—The stock in hand is that in use at Dolores—viz., 2021 lbs. 9 ozs.

#### GRAND DUCHY OF BADEN GUARDED MINES.

**Friburg, Dec. 2.**—In the end going east on Teufelsgroßgrund lode, in the Wilhelm's level, the lode is 11 inches wide, worth 10 ft. of ore per fathom, and promising. In the rise east in the back of Wilhelm's level the lode is divided into strings, without ore. In the end driving west from bottom of winze, under Wilhelm's level, the lode is 9 in. wide, yielding 8 cwt. of ore per fm. In pitch No. 2 east, in back of the Wilhelm's level, the lode is 7 in. wide, worth 4 cwt. per fathom. In pitch No. 3 east, in back of the Wilhelm's level, the lode is 6 in. wide, and worth 10 ft. of ore per fm. In pitch No. 4 east, in back of Wilhelm's level, the lode is 1 ft. wide, and worth 8 cwt. per fathom. In the end driving east in middle level the lode is 21 in. wide, worth 3 cwt. per fathom. In the rise driving east, in back of middle level, the lode is 4 inches wide, worth 10 ft. of ore per fm. In pitch No. 14 east, in the back of middle level, the lode is 3 feet wide, worth 10 ft. of ore per fm. The heavy snow and rains have for the present obliged us to stop working in the old adit level, where our men have got about 6 fathoms beyond the old shaft, and have come to what appears to be regular stopes, driven by the ancients. The tramway is now completed, but it will require many alterations before we can use it to advantage; these will be made as expeditiously as the present very unfavourable state of the weather will admit of. Mr. Hancock's services have been dispensed with, as we have now completed erecting our machinery and dressing-frame. We have during the past month dressed 366 cwt. of ore, a fair quantity, considering the shortness of the days, and our not having been able to bring down much ore to the crossers, on account of the interruption caused by the laying of our rails for the tramway. We have now finished smelting our matte. The delivering and refining, &c., will be over on Wednesday, when we commence the ore smelting.

**HABRENWALD.**—In the end driving west the lode is at present divided into three branches, each of them containing good ore. From the present appearance, I think the veins will shortly reunite, and we may, therefore, soon hope for a good lode.

**Wicks.**—The lode in the end south is 1½ foot wide, worth 2 cwt. of ore per fm.

#### THE WILDBERG GREAT CONSOLIDATED MINES.

**Wildberg Mines, Rhineish Prussia, Nov. 30.—WEST MINE.**—The Blumengang lode, driving east from the sink, will yield from 10 to 10½ tons of silver-lead ore per fm. No. 1, upper slope, will produce 7½ tons of lead ore per fm.; No. 2, middle slope, 8 tons per fm.; No. 3, bottom slope, 9 tons per fm. The lode driving east from the south cross-cut, in the deep adit level, will yield 4 tons of lead ore per fm.

**EAST MINE.**—The lode driving east from Michael's shaft, in the old adit level, will produce 3½ tons per fm. The Weitling slopes, in the back of the 20 fm. level, east of Michael's shaft, will produce from 5 to 5½ tons of lead ore per fm. The ground at Carter's engine-shaft is very much improved for sinking; we have sunk this week 1 fm. 5 ft., making the depth of the shaft altogether from surface 34 fm. 3 ft. The clearing of the old deep adit level, from Michael's shaft to Carter's engine-shaft, is still progressing well. Deep snow and frost have much impeded our surface operations this week, and prevented our completing the carpenters' shop and the engine-house roofs. The building of the engine cylinder lining is progressing well. The erection of the boiler-house walls is suspended, in consequence of the frost. The inside fittings of the large new barracks are proceeding well; the windows are in and glazed. The barracks would have been completed by this time, had it not been for the cold weather. More miners are coming in, and we shall shortly have enough hands to command our works. The smiths have removed into the new smithy's shop, and the old smithy's shop will be appropriated for the storage, and the other as a fitting-shop for the engine work. The various parts of the engine have arrived during the week; I expect the cylinder to be here before Saturday, and the outer shell of the boiler next week. The new Wielb road will be completed to the junction with the company's road at the smelting-works by Saturday; then we shall have a fine hard road from the engine-house to Cologne, which will greatly facilitate the carriage of the materials, metal, &c., at a reduced price. A dressing-house, 16 ft. by 20 ft., has been erected at Michael's floors; and another, a little larger, is in a forward state at the Blumengang floors.—J. M. CHAMPION.

**MECHANICAL INDUSTRY IN RUSSIA.**—The following extract of a letter from St. Petersburg may prove of interest to our readers:—“Mr. Baird's iron-foundry, is in full work again. He has contracted for five screw-engines, four of 300 and one of 400-horse power, and actually received 50,000L in advance, without depositing any guarantee, an unusual thing with Government contracts. The Americans (the same who have had so much to do with the Moscow Railway) are building a great many gunboats and screws; and Colonel Colli has been, or is still here, with his machinery to make revolvers.—A LATE RESIDENT IN RUSSIA.”

**COALS FOR THE BLACK SEA FLEET.**—They have been very brisk on the Tyne for some time past in sending out large stocks of the best coal for the use of our army in the Crimea, and the supply of the fleet. Every available vessel has been engaged on account of the Government, and above 500, a keel has been paid for freight to Constantinople. It seems that the quantity that is now on its passage out is considered sufficient, as the Government agent has been advised to charter no more vessels at present. The Admiralty is engaging all the available screw cutters to take out stores to the Crimea. They are stout bold vessels, made to encounter rough weather, and are well suited to the purpose. The *Baron Von Humboldt*, the *Earl of Donham*, and the *Hesperiæ*, three powerful new iron screw vessels, just finished by Mr. T. D. Marshall, a large builder on this river, have been secured by the Government to take out the plant belonging to Messrs. Peto and Brassey, for making the railway from Balaklava to the English lines. These vessels are also fitting out to embark 120 navvies for the same employment.

**WHEAL SURPRISE.**—Having heard much respecting Wheal Surprise, I was induced this morning to inspect it for myself, and I must confess that I was surprised indeed to see the beautiful gossan and ore they have in the old adit level. I would say the lode was 4 feet big, composed of gossan and a layer of smoky and rich coated ore, about 1 foot big. This is likely to prove another star in the east of Twinstock; it is only to put on the power, and I believe in a few weeks they may have a camping. The change of slate, too, in their engine-shaft speaks well, and I firmly believe, ere long they will have a good mine.—W. JEFFERY: *Twinstock, Dec. 7.*

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## Editor's Correspondence.

• Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be regularly sent on receipt; it then forms an accumulating useful work of reference.

SALES OF LEAD AND TIN.—We purposely detained the publication of our usual Quarterly Returns of Tin and Lead for many weeks, knowing how short they were of the real facts. We invited from week to week, in vain, the aid of miners and adventurers, to enable us to make the lists perfect. It is, on their part, therefore, ungracious to find fault with our statements after they have been published, when they possess the facility every week of sending us an account of what they sell; and this would ensure the quarterly returns being correct. Our desire is that it may be so for the future; and, therefore, we trust that we shall be enabled to commence the new year, and our 25th Volume, with more satisfaction, not only to our friends, but to ourselves. We give notice, therefore, that we purpose publishing the copper sales ending December on the 20th inst.; the tin on the 13th, and the lead on the 20th, of January, 1855.

PHILLIPS'S METALLURGY.—SIR: Allow me to correct a statement which appeared in a letter, signed "scrutator," published in your Journal of last week. In speaking of Mr. J. A. Phillips, the writer states that that gentleman's "Handbook of Metallurgy" is used as a text-book in the laboratories of the Government School of Mines. Such a statement, I beg to say, is incorrect. Neither Mr. Phillips's work, nor any other in the English language, has ever been used as a text-book by the students; and Dr. Percy, the lecturer on metallurgy, has frequently stated, in his lectures, that there is no English work which he could recommend to them to be used as such.—HANSEY F. BLANFORD: *Museum of Practical Geology, London, Dec. 6.*

BORING.—SIR: In your Journal of the 4th November you mention that Mr. Wall, of London, had made arrangements for introducing Kind's system of boring into this country. Will you inform me Mr. Wall's address, so that I may communicate with him on this matter?—T. : Dec. 5.—[We do not know the address of Mr. Wall, but, possibly, some of our readers can furnish it. Any additional information respecting the invention referred to will also prove very acceptable.]

OLD TREVETHER CONSOLS.—SIR: I will thank you to inform me whether the antimony ore submitted for sale by auction was actually disposed of—and if so, the price it realised?—Z. : *Old Broad-street.*

WHEEL GRENTELL.—SIR: This mine is under the management of Messrs. John Taylor and Sons, of Queen-street-place, Thames-street, who, with the utmost courtesy, are always ready to afford every information to "shareholders," as your correspondent must know, if he be one. The reports also appear in your Journal at intervals.—A BONA FIDE SHAREHOLDER.

MR. ENNER AND THE HOLMBUSH AND WHEAL MARIA GREAT CROSS-COURSES.—SIR: Observing some short time since a statement put forth by Mr. Enner in the *Mining Journal*, in which he states that the great cross-course of Holmbush cuts off the granite on the western side of Kit Hill, I beg to say such a statement is quite incorrect; that cross-course has nothing whatever to do with the granite, being some hundreds of fathoms to the west of it. The Wheal Maria cross-course, which Mr. Enner states as cutting off the granite on the eastern side of Hington and Gunnis Lake, is also incorrect, such not being the case; this great cross-course passes through the granite about Gunnis Lake, and granite may be observed at the surface for some considerable distance to the east of it, and, in two instances, across the Tamar River. Parties in the vicinity of these two cross-courses can bear witness to the correctness of these remarks.—A MINER: *Culstock, Nov. 30.*

CROSS GILL HEAD CONSOLS (Cumberland).—Some interesting particulars of this mine, by Mr. Joseph Collom, of Tees Side Mines, will be found in the *Mining Journal* of the 27th May last.

A VICTIM must seek his remedy through a solicitor, if he is desirous of proceeding further in the matter. We do not think that Mr. Guedalla will render him either advice or assistance—the return that gentleman has received for the considerable outlay and great trouble he has already taken, as evidenced by the limited subscribers to the proposed testimonial, is, we should think, sufficient to deter him from further interfering with such matters, beyond, indeed, so much as may serve his own purpose.

WHEAL WHAK VOR.—It is reported that a lode has been cut worth 500/- per fathom. The produce for the past month will be 36 tons, being an increase of 7 tons upon the returns for October.

IRISH CONSOL MINING COMPANY.—SIR: I did not intend replying to Mr. Townsend's explanation, as to my not being officially aware of the existence of his report upon the mines of this company, which appeared in your Journal of the 7th October. My letter of the 4th ult., which he refers to, being solely to deny the truth of the statement that that report was read at a meeting of shareholders, held on the 3d of that month, as also to state my not being aware of its existence, except through your paper (how it appeared there I am to this hour uninformed); but your Dublin correspondent, in his letter of last week, appearing to expect my reply to Mr. Townsend's communication, I have only to add to my former letter, that until yesterday, when I was handed the report (not to be read at the meeting of shareholders then about to be held, but to lay up with the other reports on the mines), I knew nothing of its having been made, except through the columns of your paper, as above stated. The value of this report, and others of the same nature, are on the eve of being fully tested, as in the accompanying report, received this morning, from the captain at the mines, he states, "that a valuable lode has within the last week been cut;" this will, I trust, bear out the very favourable report of Captain Matthew Francis on the company's property, that appeared some time back in your Journal, and which, in a letter from that gentleman I recently sent you for insertion, he fully adheres to, notwithstanding Mr. Townsend's unfavourable opinion of the Irish Consols Mine.—THOMAS B. LANE: *42, Margaret-street, Dec. 1.*

SOUTH CORK MINING COMPANY.—We are informed that the majority of the committee of management are in favour of erecting a Cornish engine, in preference to hiring a portable one.

WHEAL JEWEL.—SIR: I should esteem it a great favour if some one of your well-informed correspondents would furnish me with the date when Wheal Jewel (near Tavistock) was worked, the amount of share capital of the adventurers, and the amount received by the shareholders in dividends; also, how long is it that this mine discontinued working?—AN OLD SUBSCRIBER: *St. John's Wood, Dec. 6.*

CASTLE DUNAS MINE.—SIR: I should communicate with the committee of management at Salvador House, Bishopsgate: we have already had too much exacted from us by allowing similar statements to appear in the Journal. There can be no question, however, but the defaulting shareholders should be compelled to pay one of the delinquents, we know, has recently obtained some advantage through legal proceedings, which, in common honesty, should be devoted to the payment of his just debts.

"Inquirer" (Worcester).—The "dividends per share" represent the entire amount paid on each share; the other particulars also have similar reference.

UNION TIN MINE.—SIR: At the meeting held in August last, it was represented that the additional capital required (15000/-) was paid up by the issue of new shares at 1/- discount, and that the balance at that time in favour of adventurers was 1287.18s. As there has been no meeting since, and doubts are entertained whether the 15000/- was actually paid, perhaps some of your readers can inform me of the real position of the adventure?—F. G.: *Chester, Dec. 6.*

LORD BATHURST GOLD COMPANY.—A Purchaser can obtain every information respecting the case of Woods v. Bell on application to Mr. Guedalla, at the City Club.

CASTLE DUNAS MINE.—SIR: Touching the affairs of this mine, surely your correspondent, "S. R." not only has been abroad, but is so still. The company is not allowed to lapse, but, on the contrary, after a severe struggle, is just emerging from a "sea of troubles," with a fair prospect, after a few more efforts, of being able to land a cargo of first-class tin. A committee has "enquired into our affairs," and reported thereon. Defaulters are at this present moment being compelled to pay up their calls, and the present committee of management are making vigorous and successful efforts to rescue the undertaking from the ruin which, three months since, threatened to absorb it. All this will be proved at the next general meeting (in about three weeks), when the committee will give a full account of all their proceedings, as well as of their financial position. But this is "S. R." would have known, if an adventurer, and had he not been "absent from the country."—R. T. Purser: *Dec. 6.*

TERIAN UNITED MINES.—SIR: Can you inform me why the committee of management have discontinued publishing the weekly report of the captain? Is it so discouraging, that they consider it desirable to keep it as secret as possible?—R. S.: *City, Dec. 7.*

EDOMIN UNITED MINES.—SIR: I should be very sorry to do Capt. Rich, or any other agent, an injury, by the insertion in your Journal of a notice of his faults. What I intended was a correction of an alleged evil. My authority for the statement as to the excesses in the account-house is a gentleman residing at Bodmin, who wished the statement to be made. If he does not substantiate that statement, I intend to publish his name as a slanderer of his neighbours. He is well known to me, and I did not doubt the correctness of his information at the time he gave it.—R. S.

QUARTZ ROCK MANUFACTORY.—J. L. (Brighton).—The reports recently received are of a more favourable character, but additional capital is required to fully carry out the company's operations, and a meeting is called for the 18th inst., for the purpose of authorizing the directors to raise 20,000/- on mortgage, by the issue of debentures.

NEW SOUTH WALES COAL AND INTER-COLONIAL STEAM NAVIGATION COMPANY.—We have received a long account of the proceedings at the meeting from our esteemed correspondent; but when he states we only published a short report, he must certainly have overlooked the article which appeared in our last Journal, page 501; and, indeed, with the exception of the extracts from the report of the committee of investigation, the account furnished by our correspondent is not even a correct statement of what took place.

The return of copper and lead ores raised in South Australia appeared in last week's Journal: we are, however, obliged to "S. P." for his attention.

MENARD CONSOLS.—SIR: I should be glad to be informed whether Mr. Richard Goochin has paid the poor miners, and rendered an account of the application of the balance of the 2500/- received from some of the adventurers for the costs of working the mine? Perhaps some one of your readers will be able to satisfy my enquiry?—R. S.: *Dec. 6.*

"Furman" had better consult some merchant interested in the trade of the country, as to the prospects of the association, before investing.

BALYBEGH MINE.—SIR: For the information of your correspondent in Dublin, I beg to state that the quantity of copper ore from the Ballybegh Mine, sold at 21s. 6d. per ton, was 2 tons 7 cwt., and at 147. 8s. per ton was 12 cwt. The captain has now 3 tons of first quality, and 8 cwt. of second quality, ready for shipment. With regard to the nature of the lode, Capt. Smith's report, which your correspondent quotes, states it to be a small rib of copper, which continued from the shaft for 9 fms., without once cutting out. Mr. Lewis Thompson, the eminent mineralogist, who examined the mine for some of the shareholders, states that the formation of the ground, and the copper produced, is the same as that of the celebrated Wicklow Mines, and worth fully 25/- per ton.—E. P. CROZIER, Furman: *Copthall Buildings, London, Dec. 6.*

"C. W." (Hoxton).—Native boracic acid occurs in a state of perfect purity, or mechanically mixed with a little sulphur, at the Island of Volcans, one of the Lipari group, sometimes massive and incrusted, which present a fibrous structure, frequently pulverulent, and disposed as a loose covering on the surface of the sulphur. It is likewise deposited by some of the lagoons of Tuscany, and at the hot springs of Neapol—a locality which has procured for it the trivial name of assepolo. When dissolved in alcohol, it communicates to the name a green tint.

IRISH "ELVAN."—SIR: I forgot, in my last week's reply to your Dublin correspondent, to notice his query respecting the existence of "elvan" in the neighbourhood of "Skinn, Baldyshoh, Crookhaven, &c." in the County of Cork; on which head I would say that I apprehend no "elvan," properly so-called, exists in any part of that country, what are generally called "elvans" there being only "beds" of "quartzite," interstratified with slate. Of course, it is impossible to say that no "elvan" will ever be found in this district; as it is impossible to prove a negative, more especially as a decided igneous "elvan" occurs at "Bere Island" and "Black Ball Head," about 20 miles further to the north, in the same county, of which I have a specimen now before me.—R. W. TOWNSEND: *Henrietta-st., Dublin, Dec. 7.*

D. J. (Rhosmedre).—The dividend declared by the Nantlle Vale slate Company was only 1s. 3d. per share. The amount was calculated at 12½ per cent. for the half-year, instead of per annum.

MENING IN CORNWALL AND DEVON.—SIR: I have perused with considerable interest the clear and elaborate statement by Mr. R. Tredinnick, in the Supplement to your Journal of the 29th Nov., concerning the mines in Cornwall and Devon, and would recommend the paper to the notice of every person connected with the mining interest. The accumulation of facts therein comprised must have occupied Mr. Tredinnick much time, and involved much calculation.

NANTLLE VALE SLATE COMPANY.—In answer to an inquiry in last week's Journal, we are requested to state that the offices of this company are at 32, Montague-street, where Mr. Bacon (the secretary) will give the fullest information to shareholders.

NON-REMUNERATIVE MINES.—SIR: I wish you would deal a blow against those mines, such as Wheal Golden, Penhale Consols, and many others, which, with fair sales of ore, are constantly making calls on the unfortunate adventurers, while the value of the shares, whatever the number of calls, keeps pretty steady at about the price of two calls. Can it not be ascertained whether these mines are likely soon to be better, which in deep lead mines is scarcely probable? And would it not be the wisest course to wind up, sell the machinery, and lease? If you can, and divide the proceeds, whether more or less? Pray give us a lift. I was glad to see the remonstrance respecting Wheal Golden in your last Journal.—A SHAREHOLDER: *Dec. 8.*

T. B. (Hull).—Any of the works comprised in the list can be obtained through a local bookseller.

G. G. (Lincoln).—According to advices received, it was stated that the machinery was all in order, and that the crushing and amalgamating operations would commence on the 15th of November.

J. M. (Dorking).—At the present period, however feasible the plan may be, very few persons would be induced to embark their capital in gold mining. The advantages laid down may be apparent; but as a general failure has taken place, the public generally has no longer any confidence in quartz mining. When some results arrive to hand from the scene of operations, probably the proprietors may make an effort to save something from the wreck.

C. T. C. (Stourport).—Only one number has been published, another is contemplated.

T. L. T. (Katherine).—In all well-regulated mines, under the Cost-book System, meetings of the shareholders are held bi-monthly or quarterly; at these periods any proprietor can ascertain his liabilities, and by paying his quota may, if he pleases, declare off. No one should purchase shares in any of these associations unless he knew how it was managed—whether they held meetings, and if so, whether they were public. This would probably be attended with some trouble, and no small inconvenience; but were the public to exercise these simple precautions, many of these mushroom schemes would prove abortive; and the unprincipled knaves who now fatten upon the credulity of the public, and by their dishonest practices drag mining enterprise into disrepute, would have to seek some other and less questionable means of obtaining a livelihood. The Statuary Courts do not extend to Ireland.

WHEAL KITTY (St. Agnes).—SIR: Have we two agents employed—Burgan and Buckingham?—or, is the latter only occasionally called in to inspect?—A SHAREHOLDER: *St. Agnes, Dec. 6.*

P. P. (Cornhill).—The solicitor for the Inland Revenue would be able to afford the information. Patent articles of food wool &c. in the same category as patented medicines, and receive the like protection from the Legislature.

The quotation of Lydford Consols last week was inadvertently stated to be 13½; it should have been 13½. We understand a valuable discovery is daily looked for at this mine.

We have particularly to request that subscribers and others, in paying accounts, will send cheques or post-office orders, in preference to postage-stamps.

\* It is particularly requested that all communications may be addressed—

TO THE EDITOR,  
Mining Journal Office,  
26, Fleet-street, London.

Post-office orders made payable to Wm. Salmon Mansell, as acting for the proprietors.

## THE MINING JOURNAL

Railway and Commercial Gazette.

LONDON, DECEMBER 9, 1854.

We rejoice to learn, from Mr. Nasmith, that Government has at length entered cordially into his views, and has, in the most liberal spirit, empowered him to proceed to carry out his designs. We shall now have a full opportunity of practically testing the improvements of modern science, and if the agency of the steam-hammer shall, under the direction of its inventor, place at the disposal of England iron ordnance of a character and power hitherto not only unknown, but almost unimagined, we may hope, by the speedy and glorious termination of the present war, to secure a permanent peace. The British public are fully aware that, by the progress of science, what were once and long deemed mere fanciful theories have, in the use of gas, the locomotive steam-engine, the electric telegraph, and other triumphs of human intellect, become palpable realities. They will, therefore, watch with intense anxiety its application to the all-engrossing requirements of the war. We purpose to devote our best attention to the proposed improvements, but our readers must be fully conscious that secrecy is essential to success, and can, therefore, only expect from us such information as shall be consistent with our duty to the State.

The observations which appeared in our last Journal on the casting of iron ordnance have attracted much attention, and we publish two from amongst the many communications which have reached us on the subject. The information supplied by our old and valued correspondents, JOHN and EDMUND WALKER, of Tipton, Staffordshire, is peculiarly deserving of notice, and satisfactorily removes the impression, if it ever existed, that the ironfounders of England were behind in the progressive advance of the age. The wisest, the ablest, and the most enquiring minds have naturally their predilections; men are attached to the arts which they best understand; but we must remember the declaration of STEPHENSON, that impossibilities are unknown to modern engineers. Time can alone decide between the declarations of Mr. Nasmith and the equally confident counter statements of his opponents. The issue to be tried before the country and the world is a momentous one—viz., whether cast or wrought-iron ordnance is the fittest for the present unprecedented emergency, and we must await the determination of that issue. It is due to our own position, however, to assure our excellent friends that it was never intended by us to disparage the quality of the iron used in our British castings; we merely stated what may now be assumed as fact—that it was found impossible to burst a Russian 13-inch mortar, brought from Bomarsund by the *Leopard* steam-figate, weighing under 2 tons, while English 13-inch mortars weighed no less than 5½ tons, and some of them had, we believe, burst when in actual use. Our readers must judge for themselves whether the comment on this fact is satisfactory, and our correspondents will at once see that the proper place to test an English mortar of the same size and weight as that from Bomarsund is at Woolwich. To the other highly interesting and important details contained in that communication we earnestly direct public attention. The magnitude of the ordnance cast by Messrs. WALKER for the fortifications of Alexandria contrasts strongly with the comparative insignificance of that used before Sebastopol. We presume, however, that when the tramway shall be completed between the sea and our besieging batteries, opportunities will be afforded of using cannon and mortars of sizes adequate to the emergency.

The communication signed "C. S." from Sheldene, comes from a very eminent manufacturer in that town, a constant contributor to our columns, for whose scientific knowledge and practical skill we can safely vouch. The same course which has been adopted by Mr. Nasmith is open to him, and we should, therefore, recommend our valued correspondent to submit details of his proposed plan to the Board of Ordnance, in London, where we are satisfied that they will receive the best attention.

The proposition of Mr. PERKINS, son of the original inventor of the steam-gun, to throw shot and shells of a ton weight against Sebastopol, and against the equally unapproachable Russian fortresses in the Baltic—Constrat, Helsingfors, and Sweaborg—has also attracted great public notice, and cannot, we presume, be overlooked or disregarded by the Government. Those who saw the steam-gun in former years at the Adelaide Gallery, in the Lowther Arcade, will not readily forget the effects produced upon leaden balls discharged from it against an iron target, effects quite as striking as if the balls had been fired from heavy ordnance. The adoption of the steam gun was pressed upon the Government of that day, but the Duke of WELLINGTON was then, we believe, Master General of the Ordnance; he had achieved great successes with the ordinary engines of destruction in use, and we were then at peace, without any pressing occasion for new inventions.

There existed at that time a reverential deference to the opinions, per-

haps to the prejudices, of that great man; his word was authority, and no person at that period ventured to question his military opinion. Circumstances have, however, altered materially since the Iron Duke declined to adopt the steam-gun amongst the implements of war. We are unapprised whether there is any recorded opinion by him of its unfitness for warlike purposes, or whether he was merely influenced by a feeling that its adoption was at that period, one of profound peace, unnecessary, or, at all events, premature. The position of the country is, however, completely changed; science, since then, has silenced prejudice; and if WELLINGTON were now living, that great soldier would be amongst the first to adapt himself to that altered position. For the first time, at least, in the modern annals of England, even although aided by the power and valour of France, she has retired for a season from a contemplated attack on the Baltic fortresses, and she has been obliged to convert the bombardment of Sebastopol almost into a blockade. The assailants, as well as the assailed, may be said to have retired into winter quarters; but as offensive operations must be renewed when the inclemency of the season shall give way, every effort that human skill and capacity can devise must be put in action to secure success. The present Board of Ordnance will not be permitted to shelter themselves from a trial of Mr. PERKINS's machinery, by the assumed disapproval of the Duke of WELLINGTON: a fit opportunity offers for the experiment, and there are to be found in the country men fully competent to test and to decide on its efficiency. The British people will not endure further apathy on a subject of such moment; and popular anxiety can only be satisfied by a fair and perfect trial. While, however, we stipulate for fair play for Mr. PERKINS, we cannot conceal from ourselves the fact that steam wants the expansive power of gunpowder; *i.e.*, as scientific observers, we much question that effects can be produced by *any* action of steam, so concentrated and so powerful as those which result from the explosion of powder. Although Mr. PERKINS may fail in realising his conceptions of rendering the steam gun a substitute for, or, rather, a vast improvement upon, heavy ordnance, still, perhaps, it may prove a useful auxiliary in defensive warfare; and Mr. PERKINS will have deserved well of his country, if it can be rendered to any extent available for the protection of the camp, or entrenchments of the Allies against the countless hordes of Russian soldiers. The *Czar* values at nought the lives of his soldier-servants; we are, on the contrary, bound by every obligation of honour, duty, and feeling, to assist, as well as protect, our gallant countrymen with all the improved appliances which science can devise and art achieve.

The British public have not forgotten that the most distinguished naval commander of the day, one whose eminent public services during the last war placed him second only to NELSON, announced, in the early part of the present year, that he had submitted to the Admiralty a plan for the total destruction of Cronstadt. The reputation of the Earl of DUNDONALD as a scientific and mechanical inventor almost equals his renown as a sailor; we, therefore, trust that satisfactory explanations will be demanded from Government, immediately after the assembling of Parliament, as to the reasons for declining to adopt the proposal of the noble and gallant earl.

We feel proud to be the medium of introducing to notice a new and hitherto untried implement of war, named by its inventor, Mr. ANDREW CHALMERS SMITH, "the Lightning Projectile." It is devised, by its ingenious discoverer, on purely scientific principles; the propelling force being the expansive powers of the gaseous substances created from water decomposed by the action of the electric fluid. Gunpowder acts by the expansive power of the gases produced by its ignition, 2000 times its bulk being its average expansive force. The average expansive force produced by the combustion of the gases obtained from the decomposition of water is stated to be from 3500 to 4000 times the bulk, when exploded on the plan adopted by Mr. SMITH. If such a power be manageable, and brought under due control, we shall have a projectile force more than 1½ greater than that of gunpowder, and capable, of course, of producing effects comparatively more effective. We have been given to understand that the remarkable suggestions of Mr. SMITH have, to a certain extent, been already adopted at Woolwich, and, as ordinary guns can be fitted for the purpose, that his apparatus is already in course of application to several pieces of ordnance. It is expected that experiments will be very shortly made on an extensive scale, which, if successful, will tend to supersede the mighty and destructive agent so long in use; and the present age will be henceforth distinguished for the introduction of a new and surpassing power, likely to be attended with results in future wars, as great and decisive as those

ing implements, as well as to a proper adaptation of crops for economising the fertility of the soil.

The free-trade system in England was successfully defended, on the grounds that the land could be made vastly more productive by improvements in agricultural implements and in general farming. The results which were confidently anticipated have been to a certain extent realised; but there is scarcely any branch of our mechanical industry that has not been called into more striking activity than that devoted to the manufacture of agricultural machinery. We have reaping-machines, mowing-machines, and threshing-machines everywhere exhibited, and everywhere in operation; and we see the portable steam-engine in very general requisition for the purposes of the farm. The daily increasing communication between the two countries is opening to the observation of the acute and intelligent French people every species of improvement which we possess. The department of agricultural machinery was not the least striking or important at the Great Exhibition of 1851; and the approaching display at Paris furnishes an admirable opportunity to our great manufacturers of asserting their pre-eminence, and probably of laying the foundation hereafter of an extensive trade. Many of the superior farming implements which our leading agriculturists employ will be necessarily new to the more primitive farmers of France; but national jealousies are wearing fast away, to subside into a generous and useful rivalry. In extending its liberal policy, the French Government has weighty interests to overcome, but timidity is not its characteristic; and if the country can be made to understand the advantages to be derived from an increased trade with England in manufactured as well as in wrought-iron, the EMPEROR is not a likely man to resist its demands. Both nations are now deriving great advantages from the extension of the iron trade. On the 1st Jan., 1855, the duty is to be still further reduced; and with that reduction we may fairly anticipate a still further expansion of our commercial relations. But while England must necessarily, from her capital, and the activity and intelligence of her operations, participate in the benefits which are destined to result from the opening of new sources, France possesses vast beds of coal and iron ore; so that, looking to the iron forges, the national industry has nothing to fear from the reduction of the iron duty. To the increased occupation of her forges may be added that of various other branches, employing a far greater number of hands—such as the trades of the whitesmith, blacksmith, wheelwrights, and agricultural implement maker, &c. These several trades, and the numerous operative classes they include, would be extended to a degree unknown, if iron were only as cheap in France as it is here; so that cultivators might employ as much of it as was required for the prosperous tillage of their land. France is rapidly advancing in the mechanical arts; and it is inconsistent with the spirit of the age and of the people, that she should long continue inferior to neighbouring countries in the important departments of rural economy and practical agriculture.

In the last number of the *Proceedings* of the Birmingham Institution of Mechanical Engineers, a very interesting paper appeared, which was read by Mr. WILLIAM FAIRBAIRN, of Manchester, before that society—descriptive of a newly-invented steam travelling crane, the construction of Messrs. DUNN, HATTERLEY, and Co., of that city. The economy of manual labour in working travelling cranes has long been a matter of great importance to the builder and contractor for heavy works, and steam-power has been for some time employed for the lifting and removal of heavy weights by a steam travelling crane. Although the amount of saving in wages thus effected by machinery, compared with the ordinary hand-labour machine, had been sufficiently proved during the last four years, it was found that longitudinal shafts or bearings, where a fixed engine was employed, were very expensive. The great length of the longitudinal travel in the remarkably extensive works for the viaducts and bridges of the Grand Trunk Railway of Canada, and the lubrication and friction of the longitudinal shafting, rendered it peculiarly so: the saving of those shafts and bearings was not the only consideration—the wear, tear, and lubrication being a further source of expense, and the repairs were found to be very inconvenient.

The advantages proposed by the new crane were, that the steam-power travels with the traversing carriage, and does not require any longitudinal shafts or bearings, the machine closely resembling the general appearance of the ordinary travelling cranes, commonly used by masons and contractors. The longitudinal way, transverse carriage, and crab, are arranged in the ordinary manner; while the steam-engine and boiler, with the driving gear, are supported on a platform at one extremity of the transverse carriage, being fixed to it, and travelling with it in a longitudinal direction whenever so required. The steam travelling crane which formed the subject of the paper was designed for the contractors, Messrs. PERO, BRASSEY, and BETTS, and intended to be employed in the construction of the works of that railway, and is, in effect, a new application of the portable steam-engine. A pair of small direct-acting horizontal high-pressure steam-engines are secured to the main timbers of the traversing carriage, the boiler being constructed for burning wood, the cheapest and most abundant Canadian fuel; the tubes are made of solid copper, without seam or joint, so that the acid from the wood should not corrode them. The engine and boiler, with the driving gear, are protected from the weather by a cabin, constructed of light framework, and covered with a corrugated iron roof, so as to render the machinery complete.

The power of the engine is transmitted by a spur-pinion upon the middle of the crank-shaft, through a spur-wheel placed on the horizontal main driving-shaft, which communicates the motion for hoisting, traversing, or moving the crane longitudinally, and every motion can be used independently of either of the others, or simultaneously, when required. The communication of power to the different motions is effected by three sets of mitre-wheels upon the main shaft, which are engaged or disengaged at pleasure, by means of three handles that move the sliding clutch-boxes as required by the attendant; three mitre-wheels being furnished to each motion, so that, whilst the engine revolves continually in one direction, the reversing of any motion can be effected by the intermediate wheels, as in the ordinary manner. The motion for moving the carriage longitudinally is conveyed through the wheels at the extremity of the driving-shaft furthest from the boiler, the arrangement for moving the crane longitudinally, by means of spur-gear driving the travelling wheels, being similar to the plan adapted to a hand travelling crane, while the travelling wheels run upon rails, which are fixed at a gauge, centre to centre. The hoisting and lowering motion is transmitted to the chain-barrel of the crab by means of an endless chain, which is placed in the longitudinal direction of the traversing carriage, and is driven by a pulley upon a counter-shaft parallel to the main one, the motion being communicated by a pair of mitre-wheels through the short intermediate shaft at right angles. This endless chain is also connected with a pair of mitre-wheels fixed at the lower end of the crab-carriage, which give motion to a worm-wheel, the latter being keyed upon the chain-barrel.

The transverse motion of the crab is obtained by another chain, placed in a parallel position on the opposite side of the main timbers of the transverse-carriage; this chain is attached to the four-wheeled crab, and passes over a pulley on the axis of the worm-wheel, which is driven by the level gear, while an additional handle is provided for the purpose of throwing out of gear the chain of the hoisting motion, by means of a clutch-box, at the time of the transverse motion of the crab, and the chain then runs with the crab. A simple apparatus for adjusting the requisite tension of these chains is provided at the furthest extremity of the two main timbers of the traversing carriage, at the opposite end to the engine, consisting of a tightening pulley, sliding in grooves, and drawn back by a screw. The engines are 6-horse power collectively; the crane is constructed to lift at the rate of 6 feet per minute, while the longitudinal motion works at the rate of 30 feet per minute, and the transverse motion at the rate of 20 feet per minute. The motions can be worked altogether, or separately, as desired, and the clutch-box levers are so arranged that the man in attendance can work all the motions from one place.

The paper, and the description of the machinery, by Mr. FAIRBAIRN, led to an interesting discussion. Mr. DUNN exhibited a working model, and showed the different motions in operation. He observed that the improved crane was similar in principle to the ordinary travelling cranes, with some altered details; the peculiarity was the addition of the portable engine, to adapt the crane to a more extended distance of traverse, where a continuous shaft from a fixed engine would be impracticable. The machine was intended to work at a distance of three-quarters of a mile, by extending the framing and traversing rails. The first was completed, and was intended for setting the stones of the piers in the Great St. Lawrence Bridge; it was not yet at work, but several more on the same principle were being constructed. The engine and boiler weighed 2½ tons; a pair of cylinders, with cranks at right angles, were employed to give uniform motion without a fly-wheel; the boiler was tubular,

2 feet 4 inches diameter, with 2-inch copper tubes; the fire-box casing was lined with fire-brick, and had to be adapted for burning green wood, the fire-bricks retaining the heat from the first charge. In order to supply water, a wrought-iron tank was placed under the engine, the top plate of which formed the bed-plate for fixing the cylinders; and for the purpose of preventing the travelling-frame running off the rails, a double flange was employed, 1½ inch deep, both inside and outside of the travelling-rails. It was objected that, in the construction of the crab, the endless screw and worm-wheel for the lifting barrel would be subject to wear, and likely to require repeated renewal; but, in answer, it was observed that the screw-motion, though subject to more wear than toothed-gear, was generally used for the purpose of lifting, as it was more compact and secure, and could be readily replaced when worn. It was stated that the cost of the whole was 550*l.*, including the engine and boiler, but exclusive of the timber-work for the frame of the traveller platform and shed over the engine, which were not sent out, and would be supplied in Canada. The estimated expense of the entire could not exceed 650*l.* The crane was intended for lifting 10 tons, and moving that weight in any position; it would, however, take more, but was constructed for that load at regular work.

We have here applied to practical purposes a new adaptation of the portable steam-engine; and we have no doubt that the crane is but one of many important uses to which it may be rendered available.

The important mining appeal case, *In re the PENNANT AND CRAIGWEN LEAD MINING COMPANY ex parte MAYHEW*, and the Winding-up Acts, heard before the full Court, on the suggestion of the Lords Justices, was finally decided on the 3d inst. The company was formed in 1846 for working mines at Dinas Mowddwy, in Merionethshire, and was consolidated in 1848 with another company, called the Craigwen, both being conducted on the Coast-book Principle. The capital was 16,000*l.*, divided into 8000 shares, of 2*l.* each; and of these a Mr. SUDSBURY, being a holder of 63, in 1851 he arranged with Mr. MAYHEW that he should become the purchaser, and, as such, entitled to the interest in both undertakings. SUDSBURY paid the calls in the Pennant Company, and MAYHEW paid the calls in the other. On proceeding to the offices of the Pennant Company with the transfer and notice, the purser at first hesitated to receive them, there having been at the time some mention of a meeting respecting the winding-up of the company, but he ultimately received them. Mr. MAYHEW then paid the usual fee of 2*l.* 6*d.*, on which the transfer was duly entered in the cost and transfer-books, in which Mr. MAYHEW appeared as the transferee of the shares. The affairs of the company were embarrassed at the time of the transfer, and after many ineffectual attempts to improve their position, the shareholders finally, in Dec. 1851, obtained an order for winding-up. The name of Mr. MAYHEW was accordingly put on the list of contributors for 63 shares, and a call made, which he refused to meet; he then resisted the enforcement of it by the official manager before the Master, on the ground that he had been deceived by Mr. SUDSBURY as to the embarrassed state of the company, and that he had never received from the purser any acknowledgment or acceptance of the transfer. The Master, however, on proofs before him that the purser had given notice, and that MAYHEW was apprised of the state of the affairs of the company, retained the name on the list. This ruling was confirmed by the Lords Justices, and then arose a question as to the time at which Mr. MAYHEW was to be held a contributory, and whether he was liable for the debts of the company incurred before he had become a shareholder by transfer.

This was considered a question of so much importance, that it was specially reserved for a full Court; and it was now argued that Mr. MAYHEW could not be called on to contribute to the payment of debts to which he was not a consenting party. There was no general liability between the transfer and the transferee, and no special contract between them with respect to the debts of the company, and the rules were altogether silent on the subject. It was, on the other hand, insisted for Mr. SUDSBURY that Mr. MAYHEW had taken the shares subject to all the liabilities—the transfer stating that the shares were to be held by him on the same condition, with the same rights, privileges, and profits, and subject to the same liabilities as had affected the original holder. It was contended, therefore, that MAYHEW took the shares according to the general principle that the purchaser stands in the place of the seller, and authorities were cited to show that the liability of the former owner of the shares ceased with the sale.

The Court were unanimously of opinion that the latter view of the law was the correct one. A compliance with the rule of the company regulating the transfer of shares, absolved the shareholder from all future liability. It was quite settled that if nothing appeared on the face of the company's deed that in any manner affected the questions of past obligations, the buyer of shares must take them, subject to the state of the concern, as it might happen to stand at the time of the purchase. This view of the case was strongly confirmed by the language of the transfer itself, which transferred all the interest of the seller in the hands of the purser for the benefit of the purchaser; and even if that were not so, the mere title of transfer afforded irresistible evidence that the transferee was to stand in the place of the transfer. The language of the rules, the prior decisions, and the wording of the deed of transfer, all combined to satisfy the Court that Mr. MAYHEW was liable from the time of accepting the shares to all that Mr. SUDSBURY was liable for at the time he parted with them. In reference to a question raised in the course of the argument as to a partnership, the Court declared that there was no such thing as a partnership in such cases. There was merely a transfer of what was called a share; it was not at any time a partnership, and the transferee represented all the rights and interests of the transfer. The Court, however, gave no costs of this appeal, but ordered Mr. MAYHEW to pay all the costs incurred below—the costs of Mr. SUDSBURY and of the official manager to be paid out of the estate.

The decision of the LORD-CHANCELLOR, on the 2d inst., reversing, on appeal, the judgment of Vice-Chancellor STUART, in the case of EADES v. WILLIAMS, involves two points of interest which are worthy of notice. The bill was filed by the plaintiff to enforce the specific performance of an agreement of the 11th of February, 1848, whereby it was provided that the defendant should have liberty to dig and work several beds of coal in the plaintiff's mines at a price, upon such terms, and for such number of years not exceeding 21, as should be determined by two persons named. They were to have full power, amongst other things, to fix a value on the mines, and, if the arbitrators did not agree within three weeks from the date of the agreement, the defendant was to be at liberty to work the mines at such a price and for such a period as should be settled by an umpire appointed by them. The arbitrators made their award on the 13th of April, 1848, finding that the defendant was to have the mines for 14 years, at the price of 400*l.* per acre. A draft of the lease, in pursuance of it, was prepared for execution, which was furnished to the defendant on the 10th of May, but he declared the award to be invalid, and accordingly refused to agree to its terms. He was at that time working the colliery, and although he threatened to stop, he did not finally cease until the following December. The defendant resisted the suit for the specific performance of the contract on the following grounds:—First, that there had been misrepresentation as to the quantity and quality of the coal, and that, in effect, it would not pay for the working; he, however, offered to enter into and abide by an equitable contract. It was also contended, on the part of the defendant, that the award was not the free award of the referee, in as much as one of them had, contrary to his expressed private judgment, signed the award for conformity sake, in accordance with the opinion of a third person, as to the value of the coal. The Vice-CHANCELLOR overruled both objections, and decreed that the defendant should, notwithstanding, specifically execute the agreement, and he directed that a deed for that purpose should be accordingly executed.

The LORD-CHANCELLOR, in his judgment on the appeal, after reviewing the facts and evidence, observed that the defendant was clearly entitled to a valid award, unless he had waived his right by acquiescence. The questions, therefore, for the determination of the Court, were—First, whether the award was a valid one; and, secondly, if invalid, whether the defendant objected to it in due time. As to the first, it appeared that the referee had consulted a person as to the value of the property proposed to be leased by the agreement, and that, in his opinion, 400*l.* an acre was a fair valuation. If this opinion had had the effect of convincing the referee of the value of the property, the award founded on that conviction could not be objected to. So far, however, from this being the case, one of the referees expressly stated that, in his judgment, the property in question was worth next to nothing, but that he had signed the award for the sake of conformity, and in deference to the valuation of the person so consulted. This could not, therefore, be deemed an unbiased decision of

the referee; and it could not be, consequently, considered a valid award. One substantial objection was as good as many, if it were made in time; and that question remained to be next considered. The objection did not appear to have been raised by the defendant until two months after he had been aware of the award, which was a considerable delay, and, probably, amounted to a waiver, if the plaintiff had not himself afterwards treated the matter as open to fresh negotiation, and thereby condoned any question of laches. This objection must, therefore, also be treated as a valid one, and also as having been, under the circumstances, raised in time. There was, however, another bar to the relief sought by the plaintiff's bill, which was founded partly on the agreement and partly on the award. It appeared that the plaintiff had not taken steps to enforce the agreement and the award until three years after the abandonment of the mines. This delay, according to all principle and all authority, was conclusive, as disentitling the plaintiff to the assistance of the Court in enforcing specific performance of the agreement. On both points, therefore, with all due deference to the opinion of the Vice-Chancellor, his judgment was erroneous, and must be reversed, by declaring that the plaintiff was not entitled to have this agreement specifically executed. Although the appeal was in this respect allowed, the plaintiff was entitled to an account of the coal actually raised by the defendant during the time that he worked the mines at the rate of 400*l.* per acre, as the defendant must be held by his occupancy to have adopted the rent fixed, at least, to that extent.

The determination of the Government, in accordance with the suggestion in our last Journal, to send forward a body of railway navvies and other civilian operatives to the Crimea, is a move in the right direction. Their practical acquaintance with the substrata lying beneath the crust of the earth, and their capacity of cutting through the solid rock, will, we venture to predict, render valuable service to the besieging army in their operations before Sebastopol. The avowed object of their mission is, we are told, for the purpose of making a tram railway connecting the little harbour of Balaklava with the allied lines; but once on the spot, they will, in all probability, be employed in other equally useful works. The facility with which the number required was immediately procured, and the earnestness with which those selected enrolled their names, is evidence of the spirit which pervades the men, and a test of the popularity of the service. Their efforts will, probably, be also directed as well to military mining under the fortifications as to making cuttings underground for the protection, and, perhaps, for the dwellings of the troops. We can well conceive the importance of affording shelter to the wooden houses now on the passage from England from the shot and shell of the besieged, and also from the storms so prevalent and so fearful on the shores of the Euxine. Whatever duties they may be directed to fulfil, the public may rest assured that they will bring to the performance of them great practical skill, untiring energy, and indomitable perseverance, and we feel assured that the country will be fully satisfied hereafter with the results of their exertions.

#### THE MAYNOOTH SINGLE FLUID BATTERY.

The Rev. N. Callan, of Maynooth College, has obtained from the Commissioners of Patents provisional protection for improvements in galvanic batteries. He has given notice of his intention to proceed with his application for letters patent, and the time allowed by the Commissioners for opposing his claims has expired. The patent, then, may be obtained, as a matter of course, in two or three weeks.

The first improvement consists in a new single fluid battery, which does not require either porous cells or nitric acid, and which is equal in power to Grove's, or any other nitric acid battery. It is proposed to call the new battery the *Maynooth Single Fluid Battery*, in order to distinguish it from the cast-iron nitric acid battery, which is known in England by the name of the Maynooth battery, and which is a two-fluid battery.

The galvanic batteries in common use, if they be considered in relation to their voltaic power, may be divided into two classes—viz., the nitric acid batteries, and those in which little or no nitric acid is used. The former are about 12 or 15 times as powerful as the latter, but they are liable to serious disadvantages. In all the nitric acid batteries, nitric acid and porous cells are indispensable. Nitric acid is objectionable—First, because it is very expensive; and secondly, because the use of it is accompanied with noxious fumes. Porous cells are also very objectionable—First, because the use of them is attended with considerable expense. Secondly, because the preparation of a battery which contains porous cells is very troublesome and tedious, and requires a good deal of skill in the manipulator. A single fluid battery, without porous cells, may be filled in in the fourth of the time required for filling a nitric acid battery of the same size. Thirdly, if the porous cells be not of a good quality, the nitric acid battery cannot be used for a long time without injury to the amalgamated surface of the zinc; for, in the course of some hours, a good deal of the nitric acid passes through the porous cells, and destroys the mercury on the zinc plates. If the porous cells be so thick and hard as to prevent the passage of the nitric acid through them, the resistance which they give to the voltaic current is so great that the power of the battery is considerably diminished, and is much inferior to that of the Maynooth single fluid battery. Fourthly, all porous cells of the same kind do not transmit the voltaic current equally, and if, in a battery of 100 cells, there is one porous cell harder or thicker than the rest, the power of the current passing through the 99 good cells will be reduced to that of the current passing through the circle to which the inferior cell belongs. Fifthly, the use of porous cells makes it impossible to use nitric acid batteries on railway trains, or on vessels at sea—first, because the porous cells would be broken or cracked by the motion of the train, or by the tossing of the vessel, unless they were thick and hard, and then the power of the battery would be comparatively small. Some years ago the electric light was exhibited, with a nitric acid battery, on a railway train in England; but the battery was so much injured that the experiment has never been repeated. Secondly, because the acid would be spilled if the cells were more than about half filled; for the mouth of the cells cannot be made water-tight. Porous cells of a good quality are more easily cracked than the thinnest window-glass, and, therefore, they will not bear the pressure necessary to make their mouths water-tight.

The single fluid Maynooth battery is free from all these disadvantages. Its power is not inferior to that of the nitric acid batteries, as appears from the following experiments:—The voltaic current from a single pair of the new battery, in which the zinc plate was about 4 inches square, produced a deflection of 82½° of the needle of the large galvanometer belonging to the College, the coil of which is 2 feet 1 inch in diameter, and is made of copper wire ½ of an inch thick. The current from a cell of the cast-iron nitric acid battery, in which the zinc plate was also 4 inches square, produced a deflection of 80° of the needle of the same galvanometer. The porous cell of the cast-iron battery was of the best quality; it was left in nitro-sulphuric acid for nearly half an hour before the experiment, and the zinc was as near as possible to the iron. The cost of the exciting fluid in the new battery was about one-sixth of that of the acids in the nitric acid cell, and the new battery maintained its power longer than the other. Hence, the new battery is less expensive in use, as well as in construction, than the nitric acid batteries.

The new battery was discovered on the 6th of last June. On the 8th of the same month a battery of 72 pairs was shown in the College, before a large number of the students. The electric light produced by it was fully equal in illuminating power to any light ever produced by a cast-iron nitric acid battery of the same size. On the 4th of September, 1822, circles of the new battery were exhibited publicly in the College. Their power of producing heat and light was enormous. In these two batteries at least one-third of the power was lost, on account of the imperfect arrangement of the elements, which was only temporary. A battery of about 300 4-inch plates, and another of 20 plates about a foot square each, are being made for the College. The former are intended for effects which require great intensity, such as intense heat and light; and the latter for decomposition and magnetic effects. In the new battery, the plates may be 2 or 3 feet square, if necessary. It is extremely constant in its action; and even when in full work, it may be carried by land or by sea. It is the only portable battery of great power that has been yet made. It will, therefore, be very useful in exploding mines, and in producing moving electric lights. It may be carried on railways, and by its means the engine may be furnished with an electric light, which will render the train visible in the darkest nights at a considerable distance. Many fatal accidents may thus be prevented. This battery may be of the utmost importance to the vessels of the fleet in the mists and fogs which they will have to encounter in the Baltic during the coming spring: 50 or 60 cells, in which the zinc plates are 3 inches square, or 3 inches by 4, will produce a most brilliant electric light, which, with the aid of Dubosc's or

Deneuil's instrument for adjusting the coke points, may be kept up the entire day and night, or as long and as often as it may be required. By such a light on the vessels of the fleet, they may be secured from dangerous collisions. The cost of the exciting fluid for 60 cells, in which the plates are 4 inches square, is about 3d.; and from the experiments that have been already made, it is inferred that the expense of the exciting fluid required for producing a brilliant electric light for about two hours will not exceed that sum. There is now no longer any doubt about the practicability of keeping the electric light steady for any length of time. It has been stated, in a late number of *Chambers' Journal*, that the electric light was maintained without interruption for four months in the Napoleon Docks, in Paris. At present the tradesmen are enabled, by means of the electric light, to work during the entire night at the public works between the Tuilleries and Rue St. Honoré, which the Government is anxious to have finished before the opening of the Great Exhibition. The instrument used for adjusting the coke points was made by M. Deneuil, 6, Rue de Pont de Lodi, Paris, and is sold by him for 51. 12s., or 140 francs.

The other improvements, for which protection has been obtained, are new constant batteries, some of which may be very advantageously substituted for Daniell's battery in working the electric telegraph; the others may be used with great economy in Professor Gluckman's apparatus for railway signals.

#### THE IRON AND METAL TRADES OF SOUTH STAFFORDSHIRE.

[FROM OUR CORRESPONDENT IN BIRMINGHAM.]

DEC. 7.—The reports from the district are highly unsatisfactory; and the returns of the week from the large manufactories of the town are no less discouraging. As might be anticipated, the approaching meeting of Parliament, and its probable effects upon our monetary affairs, have not been without injurious results. The banks are restricting their accommodation to a very disagreeable extent; and the manufacturers are, consequently, limiting their operations. I do not know that any change in the state of the iron trade, since my last letter, can be reported. It is evidently in a state of transition, and with rather a downward tendency, but as yet in a condition which, a few years ago, would be pronounced exceedingly prosperous, whether viewed with reference to the sales effected, or the prices. We hear of an odd furnace in some part of the district having ceased working, but in travelling through the country, no very perceptible change is to be observed. The fires are still blazing, east, west, north, and south, of what is truly termed the black country, and the forges seem tolerably well employed. That there is much underselling going on amongst the small makers there cannot be any doubt, but for best iron, the leading houses still require the best price; and although all seems as if giving way around them, they are still firm in their adherence to the list. On the eve, however, of quarter-day, and with an evident prospect of being then obliged to sink the last advance, their order-books are not overstocked, and for foreign trade they are more especially inactive. The American arrivals of the week have not given us any hopes of a speedy revival of trade in that quarter; on the contrary, several railway speculations in many of the largest states are said to have been suspended, *pro tem.*, and orders for rails for lines which were projected have not been forthcoming. In fact, hardly any orders for any description of iron have been received this week from America, and none are expected until the latter end of January. Such, however, are terms of some of the advices. The demand, however, for the war and the home market is by no means discouraging; and the intimation I gave last week, that the Government were likely during the war to avail themselves of our immense powers of production, is being realised.

Already several large orders have arrived for almost every description of military stores and ammunition, exclusive of large quantities of plates and sheet-iron. At the works of Messrs. Simpson and Astbury, Smethwick, they are engaged casting cannon of various dimensions and of heavy calibre, and the rapidity with which they are being made is almost incredible, considering the comparatively little practice which the men had had at such work during the long peace. At the Toll End furnaces there are very heavy orders in course of execution for shells and balls. Some two or three thousand tons of the former are in progress of making, and a proportionate quantity of the latter.

In nearly all the small smithies of Wednesbury and Darlestone, the hands are engaged making gun furniture for the Minié rifle; and at all the leading gun manufactories the men are working late and early, and if the requirements of Government are not met, it will not be occasioned by the neglect of either masters or men. In the manufacture of swords we are also rapidly progressing, and many hands are employed producing them at the works of Mr. Mole, of Broad-street. This branch of trade had nearly ceased to exist in this district during the peace, and those who continued in the business were engaged making knives and blades for the sugar plantations in the West Indies and other places, and were very seldom engaged in making swords; we had not, however, lost the art, and when required were able to resume active operations. And here, perhaps, I may also observe, in noticing our warlike preparations, that amongst the most extraordinary improvements in the manufacture of heavy ordnance which the present war has called forth, is a new cannon, patented by Mr. Samuel Goddard, of this town, and others, for England, Ireland, and Belgium: it is, I believe, the invention of Dr. Church, who has been many years known as the inventor of steam-carriages and other patented articles. Mr. Goddard is at one of the principal Government depôts, trying experiments with the new cannon; the principal advantage of which is said to consist in the fact of it being able to throw 300 balls continuously, in an almost incredible short period. If it comes up to what it has been described to me, it will be a most valuable adjunct to the Lancaster gun, and prove of inestimable value in the event of a continuation of the present unfortunate hostilities; a few days, however, and its full value will be tested and made known. When tried in this locality, a few months ago, in the presence of some scientific gentlemen, it was thought very favourably of, and the attention of the Government was called to it; but from some cause it was not then adopted. The trial, however, which it is now undergoing will secure its adoption or final rejection.

Exclusive of the above, other valuable improvements are daily being talked of in connection with our naval and military stores, and the utmost ingenuity of this inventive district is now being brought into play for the purpose of devising the most speedy and effectual weapons of destruction.

Whilst one portion of the community are thus engaged preparing for the war, others are not less successfully preparing for the forthcoming grand peaceful Exhibition, in Paris. The electro-platers, among whom stand foremost Messrs. Elkington, have already some splendid specimens of their manufacture in readiness for consignment; and from the last published list of the contributors, it is evident that the variety of small, cheap, but useful, and what are deemed in England necessary, articles will be forwarded with the more costly gildings, platings, chasings, &c.

In the Metal Market, there has not been any marked change this week, but copper and tin have been rather easier.

The demand by the manufacturers of toys, and almost every description of light fancy articles has been very limited, and even for the heavier brass and tin-work there has not been an average consumption.

On the whole, the General Hardware Trade is dull. The men at many of the works can play two or three days, if they please, without loss to their masters; and goods of nearly all kinds are to be purchased, either for the home or foreign market, at a considerable reduction on the prices of the last quarter.

#### IRON AND COAL TRADES OF YORKSHIRE AND DERBYSHIRE.

[FROM OUR CORRESPONDENT IN CHESTERFIELD.]

DEC. 8.—There has been no material alteration in the position of the Iron Trade during the week; the recent "triple alliance treaty" has restored a little confidence as to the future stability of the trade, which had begun to diminish rapidly, and to partake of that dulness which pervades many other branches of commerce. We are not overstocked with orders, except for warlike equipments; but the home trade continues to manifest the same activity as it has done for some time past. American and English stocks are said to be low, and the orders which are now given are for immediate use, there being an almost entire absence of speculation. The weather is, also, somewhat unfavourable for the extension of some large works which are in contemplation. At present, there is great disparity in the prices of manufactured iron, for, although the better class of houses are steadfastly adhering to the prices fixed at last quarter-day, it would be idle to deny the fact, that underselling is going on in Yorkshire and Derbyshire. The preliminary meeting of the trade has been fixed for the

28th, and it will then be a question with the ironmasters as to what steps shall be taken to check this mode of underselling, and also to decide whether a reduction of 20s. shall not take place. That amount of reduction seems to be anticipated by the ironmasters in those counties; and, supposing this reduction to be acceded to, the most critical part of the question will remain for decision by the ironmasters individually—namely, whether or not a corresponding reduction will not have to be made in the wages of the men. We have reason to know that this step will be adopted by some, but with what result we will not attempt to conjecture.

The returns of the Board of Trade for the month ending the 5th of November, were issued on Saturday, and again show a diminution of exports, as compared with the corresponding month of 1858; the falling off being 592,158. There is an increase in coals and guano to the amount of 26,517, and a decrease in machinery of 70,499, of metals of 176,721. There has been a general falling off in metals, with the exception of steel and lead.

The Pig-iron market is still in a depressed condition.

The Coal Trade, as may be naturally expected at this season of the year, is remarkably active, and stocks are rapidly diminishing. There has been no alteration in prices, which continue very firm. A number of steady and intelligent miners were dispatched last week from Derbyshire to accompany a body of their fellow-workmen to the Turkish coal mines at Heratia, which are about to be worked by the English Government, for supplying our war steamers and transports with this mineral: they were to be supplied with mining apparatus necessary for carrying on their work. It is calculated that the Government will save an immense amount of money by the adoption of this step.

We have had favourable reports from the lead mining districts this week, and great results are anticipated from the Derbyshire mines during the new year. There are a number progressing favourably, and it is expected, in the course of a few months, that the adventures will be so far developed as to leave little doubt of their ultimate success. The Midland Mine, at Ashover, is going on very prosperously. Last week the company sold 119*t*. worth of ore, and a considerable quantity is now on the surface of the mine. A new lead vein has also just been discovered, about 18 inches thick, and extending many fathoms; and the local agent is very sanguine of the value and productiveness of the mine.

The anticipated favourable effects of the alliance of Austria with the Western Powers has produced great confidence in the provincial Share and Stock Markets; and this fact, coupled with the decreased value of corn, gives us a little hope of better prospects for the winter.

There is a general feeling of disgust expressed by the leading manufacturers in these counties at the unfounded attack on the gunmakers of Birmingham by the great "Thunderer" of Printing-house-square.

A lecture, bearing chiefly on ironstone and other minerals, with which the rich district of Whitby abounds, was delivered by Joseph Bewick, Esq. (who has for many years superintended the ironstone mines of Mrs. Clark, of Hollins House, Grosmont; near Whitby), in a large room adjoining the inn at the Grosmont Station, on Monday evening last, the attendance was large, and the lecturer, having the advantage of a thorough knowledge of the subject on which he dwelt, by many years' experience in the working of minerals, riveted the attention of his audience upwards of an hour. The gratification manifested by all present must have been highly pleasing to him, showing, as it did, that the time he has bestowed in collecting such a mass of information has earned for him the respect and good will of the neighbourhood in which he resides. The publication of much of the lecture would make known the capabilities of this district. We doubt not, that when the North Yorkshire and Cleveland Railway (now commenced) is open for traffic from Pickton to Grosmont, capitalists will have a fine opportunity of accumulating wealth, by erecting blast-furnaces, and establishing iron shipbuilding at Whitby, so that in a few years the whole district will be densely populated with ironmasters, ship-builders, merchants, mechanics, and the resulting trades and professions.

#### STOCK, MINING, AND RAILWAY SHARES IN IRELAND.

[FROM OUR CORRESPONDENT IN DUBLIN.]

DEC. 7.—I regret to say there is not much improvement as affects our "Room," for business would appear to slacken rather than to improve. As to the Government funds, we had no price for Consols on Thursday or Friday; done at 90*t* on Saturday, 91 on Monday, no price on Tuesday, and again the same yesterday. One or two time bargains, I understand, were done for the account, to the extent of some three or four, 600*t*. or 1000*t*. stock. I have almost made up my mind to give up my "chair," for really the half-hour each day is a waste of time, although, to tell you honestly, it is, perhaps, as well employed there as elsewhere. Now, then, for other quotations, taken from our "Room" list—Drainage debentures, 5 per cent., of 500*t*. quoted 99*t*—one bargain during the week. Mining Company of Ireland, which are rising in favour, have been done at 16*t*. the last price quoted being, however, 17*t*, or an advance of 2*t*. per share in the past week: this I think, from reports, a good investment. Irish Consols, one bargain, at 4*t*. 6*d*.; these are the only two mines in which business has been done. Lackamore have, I learn, been enquired after, but I believe the arrangements are being made on your side, and certain orders have been withdrawn. Business has been awfully slack, the quotations for shares in joint-stock banks, steam, miscellaneous, mines, and railways, not extending beyond for five bargains at prices in any one day—as, for instance, Friday three, Saturday three, Monday three, Tuesday four, Wednesday five. Great Southern and Western Railway have advanced from 43*t* to 44*t*, and may be considered firm at the latter figure; Cork and Bandon have been done at 10*t*, 50*t*. paid; Irish South-Eastern, 5 to 5*t*; Midland Great Western, 45*t*; Dundalk and Enniskillen, 13*t*; Waterford and Limerick, 21*t*. Consols close with us to day at 91*t*; National Bank done at 26*t*; Lackamore, 8*t*. 6*d*. to 9*t*, looking up from certain movements on your side; Mining Company of Ireland somewhat flatter, 17*t*, 4*t*; Dundalk and Enniskillen Railway done at 13*t*. This is the entire business of the day. Shares in the General Mining Company for Ireland have been offered at 30*t*, but no buyer; I believe, however, 20*t*. might be got. What a pity to see so good a concern at such a discount.

The half-yearly meeting of proprietors of the General Mining Company for Ireland came off on the 4th inst., of which, perhaps, the less said the better, as the report of the directors was meagre in the extreme, and, moreover, did not fairly and fully state the position of the company. It was

stated that the present board of directors had only been in office some six weeks antecedent to the making up of accounts to the 4th Oct., but there was no reason alleged why they could not give a supplemental report as to the operations of the past two months. The chairman, in his remarks, was most unfortunate in giving evidence of the treacherousness of his memory, of which one or two instances will suffice. He claims great credit as being due to the present board for having cleansed the Augeran stable, forgetting that he, as chairman, has presided over those on whom the affairs of the company have devolved for the past seven or eight years. He, as chairman, and a paid officer of the company, passed the several half-yearly accounts, visited the mines, charged some 25*t*. on account for travelling expenses, and yet we find him charging his co-directors of times past with neglect of duty. Again, as to the "truck" or meal system, if I mistake not, much credit was taken by that gentleman some 12 or 18 months since for having exploded a system so fraught with evil to the miners and labourers. And it was with pleasure this announcement was hailed by his co-adventurers; for it was notorious that this meal obtained, being at the rate of five-sixths the earnings, was retailed to the miner at a reduced rate, to provide "brogues," or covering for the woman and family, as well as a change of diet. Yet, forsooth, I find that the chairman is made to say that not only were "orders" now given for meal by the agents of the company, and for which they were responsible, but that such course had been adopted for the protection and advancement of the position of the miners, as, if paid in money, they would only spend it in whiskey, become intemperate, and their families be left without the necessities of life. Most certainly, I cannot understand the argument now advanced, as contrasted with the course pursued by that gentleman some 12 months since. It would appear that a change has come o'er the spirit of his dream. One other little remark, and I will leave the chairman in his glory, achieved by his own talents, aided by his aides-de-camp, or "miffs," as we best understand them here, the corps of engineers, commanded by Corporal Evans, and supported by private Camya—the latter gentleman having a special appointment at and after the rate of 10*t*. per week, money paid in advance. It is, however, perhaps only right to say that the chairman was a "fleete," in error with reference to the demands of the men and the Nenagh Sessions; this has, however, formed subject of observation on a former occasion, and may be left. I regret that the chairman did not more clearly explain the charge (for such it was) made by Mr.

Powell, one of the auditors, that money had been improperly drawn by him, and had never been entered in the books; nor was the amount (say 15*t*) remaining in the hands of the chairman replaced until the accounts had been referred to be passed. However, it is not worth while to dwell on the subject, which cannot reflect credit on the chairman, the board, or the paid accountant or auditor. In closing my remarks on this melancholy representation of the system observed in conducting the proceedings of a mining company, which, however, I am happy to say, is an exception, and not a general rule, as applies to management on this side, I may give you the substance of information I have gathered as to proceedings at the mines. It appears that the chairman has lately visited the mines, staying some 10 days, and had paid two months' arrears of cost, which was a great "God send" to the men—if in money, and not in meat. Captain King, it appears, has taken office, and doing his work right proper. It is said that all the miners will be set to work immediately (*query*); there are, however, some seven or eight bargains at work, which looks well, and if they are productive, I would ask why were they delayed?

With reference to mines generally, I have little to observe. The junction or amalgamation of the Knockatrelane with the Waterford Mining Company does not appear to be sufficiently comprehended or understood on this side; however, you may. It would appear from your Journal that the Waterford Mine, of which deponent saith naught, is estimated at 10,000*t*. as market value. Such, I have no doubt, is the case, or you would not have stated it; yet I believe there would be some slight difficulty in obtaining on this side the Channel one tithe for the property. Two shares are, I am given to understand, to be given of the Knockatrelane for one in the Waterford Mine, so that I presume the two concerns are to be merged, on the funds of the one applied to the other. Just a word on this point: If I mistake not, Mr. Francis Stokes is the secretary to the Knockatrelane, and doubtless can render all particulars. A gentleman of the name of Cash, with whom I am somewhat familiar, so far as the appellation goes, is, I presume, or concerned in this same matter; while a Mr. Richard Hodgson Smyth, who, I presume, is known in your city, is another. The latter gentleman, if reports truly, was one of your London speculators. He, it appears, came over to this country, obtained from Lord Stradbroke a grant, returned to London, started a company with 20,000*t*. shares, but of which only about a moiety were issued.

[A heavy pressure on our spines has compelled us to postpone some of our correspondent's remarks on other mines.]

#### CLAYTON'S PATENT BRICK-MAKING MACHINE.

We, some time since, so fully described the peculiarities of this machine, that it is only necessary to refer to details as to the working of it. Mr. Clayton has afforded the numerous visitors to the Cattle Show, in Baker-street, an opportunity of witnessing its operation, by having it continually at work during the past week, and has been honoured by the presence of a number of gentlemen connected with building, including several of our principal contractors and brickmakers. Various improvements have been made to bring up the edges of the bricks to a perfect angle, which have been completely successful, as fully illustrated yesterday, by some being made upon the original method, which turned out the bricks in a very rough and irregular manner. The improved and patented means consist of lengthening the two rotating cylinders—the axis of each being prolonged, a bevel-pinion, and pulley fixed on the top, and the necessary horizontal gearing constructed, so as to communicate continuous motion, or horse-power, to the cylinders direct from the engine, and which has the effect of turning the bricks out with more perfect angles than by hand labour. The machine we witnessed has been driven up by way of experiment to 4-horse power and at that speed is capable of producing at the rate of 30,000 bricks per day. It has been assumed by some that it is necessary to take the stones out of the clay, before putting it into the machine; but that is not the case, as the earth is put in in the same way as in a common pug-mill—the cutting wires not being at all injured by coming in contact with any stones; and there can be no doubt but that this machine will be to clay what the saw-mill is to wood. The second machine exhibited the patentees' dies, worked in conjunction with Beattie's patent, and turned out the perforated bricks in an equally satisfactory manner. A third machine is for making pipes, worked by hand, and from which some excellent work was produced. In addition to the above were pressing machines, applicable either for bricks or tiles; and, as they are self-lubricative, can be worked throughout the day without stopping to be cleaned, and at one operation turning out the bricks or tiles in the most perfect form.

Mr. Clayton has sent out to Australia, for a wealthy capitalist, 4000*t*. worth of his machinery, which has been erected under the superintendence of Mr. Hurley, a builder of London, who went to Melbourne specially for that purpose, and by recent advices states the whole is now in admirable working order, and that samples of the various articles produced will be sent to the Exhibition in Melbourne—the local Government having prepared an elegant building to exhibit the various productions of the colony. Mr. Hurley is quite astonished at the various descriptions of clay he has met with in a single field—being applicable either for pottery, pipes, or bricks. The machine has produced 30,000 bricks, and as many pipes, without a single breakage or flaw; a matter of great importance to the proprietor, who has a large contract to execute for the Government, to carry out the contemplated sanitary improvements in Melbourne.

Mr. Clayton has also received large orders from St. John's, New Brunswick, where, from the admirable manner they have succeeded, great anxiety is expressed for further supplies. Baring Brothers, for Nova Scotia, have also testified to the satisfactory manner they have worked. As a proof of the improved quality of the bricks, a firm at Haslingdon, near Manchester, who have adopted the machine, assert that they can obtain 5*t*. per 1000 more than for those made by hand, whilst the saving in making is from 2*t*. to 3*t*. per 1000, according to the power employed. The Dudson Iron Company have ordered six machines, and it is expected their works will be opened, with some ceremony, by Lord Palmerston early in the ensuing year, by which time Mr. Clayton hopes to have them in full operation. In conclusion, we may add that for simplicity and strength they must command extensive patronage; and the neat and admirable arrangement of Mr. Clayton's works, in Upper Park-place, Dorset-square, will repay an inspection by any one interested, or likely to be benefitted by the invention.

**TWO COLLIER OWNERS CHARGED WITH FELONY.**—The owners of the Airey Colliery, near Wigan, Messrs. James and Thomas Gidlow, and D. Battersby, their manager, have been committed for trial at the next Liverpool Assizes, on a charge of drowning, or filling with water, certain mines of the Earl of Balcarres. The Airey estate adjoins that of the Earl of Balcarres, and across the surface of the former runs a tributary of the River Douglas, called the Airey-brook. Originally a vein of coal from the surface of the earth passed close under the Airey-brook, and gradually dipping downwards under the Airey estate, passed also under the land of the Earl of Balcarres. The coal under the Airey estate was much of it worked out many years ago, and that under the estate of the Earl of Balcarres is now in course of being worked. An act of great folly was committed by the parties who originally worked the Airey estate mine, for they got the coal close under the bed of the brook, and up to the surface of the earth, where it dropped out. The result has been that, when the brook has been overflowed, large quantities of water have got down into the workings and flooded them. The portion of the vein of coal under the land of the Earl of Balcarres being on the lowest level, of course his works depend entirely on earthen being taken to leave a sufficient barrier between the two sets of workings. Such a barrier, it is alleged, had been left; and the charge against Messrs. Gidlow is, that on or about the 13th of October they did maliciously cause about 10,000 tons of water to flow into the subterranean workings of the colliery communicating with those of the Earl of Balcarres, with intent to delay the working, and to damage and destroy the same. This charge has been made before the magistrates of Wigan, and by the 7th and 8th of George IV., cap. 50, s. 6, the offence, if proved, is made felony, and is punishable with imprisonment or transportation. Mr. Fawcett the manager of the colliery of Lord Balcarres, and a number of other colliery managers, gave evidence, and the magistrates, after hearing it, said it was their painful duty to send the case for trial. Bail, however, was accepted for the prisoners until the assizes. Some comments on this subject are unavoidably postponed.

**ADVANTAGES OF THE SMOKE ACT.**—It is stated by Mr. Wright, C.E., Government Inspector for the Smoke Nuisance, that there are upwards of three millions of tons of coals annually imported into London by sea and by railway, and further, that at least one million of this quantity is annually consumed for manufacturing purposes, and it is a well-known fact, established by practice, that the better consumption of smoke, and obtaining more perfect combustion, 20 per cent. of fuel is saved, hence 20 per cent. of one million tons amounts to two hundred thousand tons of coal saved annually to the nation, and that, at an average cost of 1*t*. per ton, £200,000*t*. is saved to the metropolitan proprietors of furnaces and manufacturers, which would otherwise pass on in smoke, contaminating the atmosphere; but by this calculation, he asserts, becomes a twofold and total saving to the nation of 400,000*t*. per annum, and that without regarding it in a sanitary point of view, for as already the improved appearance of the London atmosphere is distinctly observable, as it is unimproved to point out the injury inflicted upon the public health, or the pecuniary loss we sustain in the apparently trivial matters of soap, and wear and tear of linens, &c., due to the deposit of the large amount of carbonaceous matter always present in the atmosphere. Inasmuch as smoke cooled is hot, but when heated to 600 deg. Fahrenheit becomes highly inflammable gas, and is consumed; therefore, every wreath of smoke that ensues up a chimney is fuel wasted.

## PARSEY'S PATENT REVOLVING PUMP.

Facts are always better than opinions. The latter are advanced by ignorance, prejudice, or counter-interests; while the former speak for themselves and silence all arguments; and it would be well for public improvement if they could command the preference. Circular motion has always been the aim of mechanics; and its attainment renders its adaptation to many important purposes not only facile, but publicly beneficial, as improvements. The same engine may be used for steam, air, gases, or water, for which it was patented. These pumps raise water from a well as high as the atmosphere, will support a column of mercury, and throw it with an unusual velocity. One of these pumps, 12 in. in diameter by 6 in. long, will raise and throw 85 gallons of water in 60 revolutions per minute without any suction or other valve—a perfection and qualification no other can claim.

For water-works, mines, fountains, farm purposes, fire-engines, ship's pump, and domestic purposes, these pumps will be a considerable improvement and benefit, as, from their easy action, they may be made portable for hand labour in agriculture, &c., and in employing steam for quantities beyond manual strength, much less steam-power is required to throw greater quantities of water than is thrown by other pumps, with a saving of 25 per cent. in steam, and, consequently, in fuel. For brewers, and any hot liquor business, they are without rival, as there are no leathers or packing of any kind—all the parts working metal to metal, through which, hot or cold, the pump works equally well.

The simple and effective construction of the revolving pump is the same in all adaptations; and so perfect is the invention that it proves to be equally excellent as a steam-engine, a pump, an exhaustor, and a blower. This is not alleged, but practically proved; and may be seen on application to the patentee, No. 3, Crescent-place, Burton-on-Trent.

For ship's pumps they are fixed as when worked with steam, and do not require any valves; for by trapping the discharge port, they cannot choke, which has been so great a perplexity. By turning the machine upside down, and syphoning the discharge and rising main for throwing water to great heights, the benefit of a fall is had on one end of the lever to assist the other end, driven by the steam-engine, in forcibly discharging the water; and for fire-engines, extraordinary elevation, and rapidity of discharge, by air vessels, being attached to the rising main, as applied by the patentee, the scene of hydraulics is obtained. As the motion is continuous, without the jump and unevenness of reciprocating buckets, these pumps are like double-acting pumps; and as the water follows the syphon from the discharge pipe, as it does the bucket of an ordinary pump, it only has to be thrown round the cylinder, like the bend of a pipe, without having to carry up the weight of water upon the bucket, the length of each stroke, which adds to the labour, or power, for working pumps.

RE-APPLICATION OF BACK WATER.—Supposing a mill, with a tolerable supply of water, or in unusual drought, should run dry, the mill must stop working, at a great sacrifice to the owner; but in such cases as may not interfere with the interests of others in the continuation of the stream, a re-application of the back water may be made in the following manner:—A mill is situated two or three miles from the Severn, supplied with water from the adjacent hills; after passing the mill the streamlet runs into the Severn, with a fall of (say) 10 feet, more or less, with no other mill application. If at no great distance from the mill a reservoir was made for the stream to gather in, by working Parsey's revolving pump, with a revolving, or any other good steam-engine, and raising the water by a main inclined to the height of the 10 or more feet required, a re-application of back water would not only be a security against the fatality of the drought of this year, but be a means of constantly economising the water-power of mills. Information and plans may be had on consulting Mr. Parsey, as above.

The Mariquita and New Granada Mining Company have convened an extraordinary general meeting, to be held on Friday, the 15th inst., for the purpose of receiving Mr. Gower's report of his visit to the company's mines at Marmato and Santa Ana; of the purchase of the Purisima Mines, and to adopt such measures as may be deemed expedient; the meeting will also take into consideration the various matters stated in the requisition which appeared in the *Mining Journal* of Saturday last. The directors have received some interesting reports on the mines of Purisima from Capt. Eastman, head mining captain at the Marmato Mine, and who has been for 27 years employed on that property, from Mr. Thomas Johnson, the superintendent of the Santa Ana Mine, and from Mr. Charles Johnson, the superintendent of the Marmato Mine. Capt. Eastman states, that he proceeded to the Purisima Mine, and on the 13th, 14th, and 15th of Sept., examined the various workings that are at present under operation. On the Ichicola lode the workings are, to all appearance, on a champion lode, in all probability penetrating the very extensive homo (side of a hill) in which they are situated, varying in width from 5 to 10 feet, imbedded between two walls, inclined to a permanent and well-formed nature. The general appearance of the ores has as of a favourable character for breaking; and notwithstanding the lode has as yet not been sufficiently opened out to enable him to give any accurate estimate of the quantity of ore it contained, he might safely say that, at present, at least 20,000 tons are discovered, and by driving another cross-cut about 12 fms. lower, another 10,000 tons would, in all probability, be made available, if the lode holds in depth, which to all appearance it does. La Paz lode is a continuation of the above, but much lower, and further to the west; the ore does not present so favourable an aspect, but there are about 10,000 tons discovered. Chilical, also, appears to be a continuation of the Ichicola lode eastwards, and if so, the quantity of ore that can be extracted will be very great, the lode being about 5 feet wide, looking very favourable. On the Caucique lode nothing had been done, it being removed too far from the mill to render the ore available. However, the aspect was good—lode about 5 feet wide. Capt. Eastman saw with great pleasure the smelting prospects held out by stream workings, they, to all appearance, being rich and extensive. The mines are not quite in working order, but are daily improving. There are several necessary works still wanting, such as two new mills, a cross-cut on the Ichicola lode, sundry repairs to the Acuequia, all of which might be done for about \$50,000. The cost of extracting, if tramroads were laid down direct to the mill, would be about \$24 per ton, and the value of the ore per ton would be about \$10, taking good and poor on an average. Mr. Thomas Johnson states, from the cursory examination he had made of both lodes and Oro Corrido (stream-works), the company had reason to congratulate themselves upon having concluded a most advantageous purchase. The lodes have the advantage of being worked by means of levels, or adits, so that there will be no expense in the shape of machinery, for the purpose of extracting either mineral or water, and, by judiciously selecting the site for any new mills which it would be found advisable to erect, the delivery of them may be effected at a very trifling cost. The trials which have been already made show that the gold is apparently distributed in abundance on almost every part of the mountain, and when a further supply of water could be obtained, there was little doubt that from this source alone the company would in a very few years repay the capital invested in the purchase of these mines. The new works most pressing are the erection of a fifth stamping mill, immediately below the level in the Ichicola Mine, whereby the carriage, now very costly, of this mineral to the other walls would be entirely avoided; the expense would not exceed \$3500 to \$4000, and probably would require six months to complete. Another is the bringing in the water of the Rio Antonio, in order to enable them to extend the workings in the Oro Corrido Mine, which might be effected at an outlay of \$10,000 or \$12,000, making in the whole about \$45,000, which would be spread over a period of a year. Mine captains would not be required at yet, the works being upon the very simplest plan, and any advice or assistance required could always be procured from the Marmato Mine. Mr. Charles Johnson, after fully confirming in detail the report of Capt. Eastman, and stating that at the present there were three stream works in operation, giving on an average jointly from 5 to 8 lbs. of gold per month, concluded:—“Of course, the company will be put to some expense at first, as several very necessary repairs are required on the Acuequia, also the erection of two new mills, and the general opening of the mines. This may take \$12,000; but when these works are finished, I think that the Purisima Mines will prove themselves to be a lucrative source of income to the Mariquita and New Granada Mining Company, and that the company will never have to regret their having given full sanction and authority to the above director they sent out to set for them, and who has concluded this business on very favourable terms for the company, after the many difficulties he has had to overcome in securing these mines for the company.”

We have advices from Mariposa to the 20th of October. About 4 tons of the McElroy's quartz vein have been taken to the Mount Quirio Works, where it will be exposed to a scientific test to demonstrate its value. The miners on the Merced, in the vicinity of Sherlock's and Washington Flats, are doing a thriving business. At Hawkes' Bar, a short distance below Marmon Bar, on the Mariposa, several claims are paying well. Sherlock's Flat pays from 10 to 15 lbs. of washing dirt.

In America, a great impression has been produced by the stoppage of Eeves, Buck, and Co., the largest iron manufacturers in Pennsylvania. The lists of the house are stated at different amounts from \$100,000 to \$100,000, while their nominal assets are represented to reach from \$300,000 to \$500,000.

The Granger has arrived in the Downs from the Cape of Good Hope, with 124 tons of copper ore on board.

At the Auction Mart, some Westminster Improvement Bonds, of 500/- each, were sold at 15/- and 180/- per bond.

THE NEW GRANADIAN LAND AND TRUST ASSOCIATION.—A prospectus has recently been issued to establish a company under the above title in France, as a society in common asset, by which the responsibility of shareholders is limited to the amount of their subscriptions. The capital proposed is £100,000, in shares of £1, each, or 25 francs, of which £20,000 are now to be subscribed for, with £1 per share paid, no further payment to be made within one year, or until the Executive Government of New Granada shall have legally transferred to the association the rights and privileges mentioned in the decree of the Legislature for the redemption of the bonds. A preliminary survey will be made, in order to select allotments, and to ascertain the value of agricultural products, timber, minerals, or other natural and intrinsic advantages of the property granted to the association. The committee have determined to confine their proceedings to the primary arrangements now in progress; with that view a small preliminary capital only will be raised by the present allotment of 50,000 shares, the residue being reserved for the concessionaires of this important undertaking.

## WEEKLY LIST OF NEW PATENTS.

WEEKLY LIST OF PATENTS SEALED.

J. H. Young: Railway.—C. F. Stanbury: Machinery for making lock springs.  
P. M. Parsons: Railway axle bearings.—L. N. Langlais: Steam-boats.—J. J. Abadie: Mode of working screw propellers.—D. Gaudichet: Puddling furnaces.—J. H. Lunn: Railway brakes.—A. Warner: Combining metals.—W. H. Merriweather: Wrought-iron posts for fences.—F. J. Bramwell: Steam-engines and steam-hams.  
G. H. Longfellow: Communication between passengers and guards, &c.—J. Platt: Brick-making machinery.—W. Haan: Propelling vessels.—W. Low: Ventilating Testing iron as to its capacity for receiving magnetism.—W. Brasley: Gun-barrels.—E. Hunt: Screw-propellers.

APPLICATION FOR PATENTS, AND PROTECTION ALLOWED.

J. Fournier: Shorthorn-stone, Ilkley—Improvements in machinery for washing, boiling, cleaning, and bleaching rags, fabrics, and textile substances.  
J. Mansfield, Stoke, Stafford—Improvement or improvement in steam-boilers.  
J. Ledsham, W. Wight, and T. Davis: Hail-tax—Improvements in machinery or apparatus for raising water and other fluids.

J. Farrell, Dublin—Improvements in fire-proof flooring and roofing, which are also applicable to the construction of walls and bridges, and other like structures.

J. Brindley, Gower-street—Improved method of roofing or covering buildings, reservoirs, and other spaces requiring roofs or coverings.

## ON SCIENCE IN THE MINES.—No. III.

BY HERBERT NACKWORTH, M.I.M.E.C., INSPECTOR OF COAL MINES.

To Humboldt, in 1790, the miner is indebted for a safety-lamp to enter poisonous gases, of which he thus writes:—“No fear need be entertained of igniting explosive gases in mines in using this lamp, which is supplied by a reservoir of common air.” But it is to George Stephenson and Davy that we owe the splendid invention, in 1812, of the present convenient safety-lamp for working mines which give off carburetted hydrogen. It has now sustained a trial of nearly 30 years, at least in the North of England, without one well-ascertained case of failure. All statistics combine in showing that its universal introduction would alone render the miner's most deadly enemy almost powerless to destroy.

The ventilation of English metallic mines would seem to be one of the special miseries of the winds of heaven, for there the science of ventilation is almost unknown. The small effect due to natural ventilation is nearly lost by allowing the air-particles to become contracted, or the air to leak away from one shaft to the other, by the shortest way it can find, so that hardly any penetrates to the extremities of the mine, where the hard work is going on. For a century, or more, furnaces have been applied to the bottom of the shaft, where the air is intended to ascend, called the up-east shaft, and they are now common in coal mines. They heat and rarify the air so that it ascends the shaft, whilst cold air necessarily descends another shaft to supply its place. In many rooms, with a fire and chimney, presents an exactly analogous case. The air from the outside descends through the doors and windows, by the shortest course, to the chimney, and in a mine these currents have to be turned aside and directed so as to traverse every part, and each of the points where the men are at work. The quantity of air which thus enters the Hetton Colliery, the largest in the world, is upwards of 200,000 cubic feet per minute, equal to a cube of air of which each side measures 60 feet in length. Twelve tons of coal are consumed by the three furnaces every 24 hours. In Belgium, where the science of ventilation is better understood than in England, the furnaces are replaced by machines which pump out the air. The number of such ventilators already amounts to 182, driven by steam-engines of the united power of 2200 horses. They are not only free from the danger of exploding fire-damp, but are more regular in their action, more under control, and more economical than furnaces. It seems, on the whole, as we stand in the same relation to the Continent in respect of mining, as we do in manufactures generally. Necessity and energy have triumphed amongst us over the more important difficulties, and from us they have hitherto received the most essential improvements. They are ever on the watch, and eagerly adopt each step of our progress, and we should certainly be wanting in commercial enterprise if we fail to appropriate the science and refinements by which they are rapidly compensating for their deficiencies in the raw material.

We have much to learn in regard to the safety of mines, in boring, in machines for raising men, in the extraction of the whole of the minerals, and in coking. Within the last 30 years the labours of D'Orsay, Dugouë, and Kind, have raised boring to the rank of a mechanical science. Faureville, by his system of hollow-rods, and a current of water to clear away the débris, bored at Perpignan, 183 yards in 23 days. Mulot, encouraged and advised by Arago, persevered with the well at Grenelle, from 1833 to 1847, till it attained a depth of 600 yards, and yielded 740,000 gallons of water per day. Boring for salt springs to 764 yards have been executed by Kind, the so-called “Napoleon” of borers. He has also bored shafts of 14 ft. in diameter, and at Homburg is now executing a boring to a still greater depth, to obtain water of a sufficient temperature for hot baths without the cost of re-heating it.

A memorable stimulus was given to improvements in mining in Belgium by the premiums awarded by the Royal Academy of Science in 1840, since which time greater progress has been made in the application of science to mining than in any other country in a similar period. The production of coal in 14 years has increased 112 per cent., the number of workmen by 53 per cent., and the price of coal has diminished from 11s. to 6s. 8d. per ton. We should not be surprised at such a result, if we consider the training of the leading engineers of that country as well as of France. The first pupil at the University of Liege, and the Ecole Polytechnique at Paris, what we should call a senior wrangler, enters each year the Ecole des Mines at those places. A three years' course, accompanied by periodical visits to mines, and several stringent examinations, qualifies the pupil as an aspirant engineer. He is then employed constantly in visiting and reporting on mines, or he takes the management of private works for periods of five or ten years. The wisdom of those two countries has selected their highest talent for the promotion of the interests of mining; it combines the best practice for solution the wants and the difficulties which affect the art of production in all its branches. The able work of Inspector General Combes, on the exploitation of mines, and the accurate investigations and descriptions of practical subjects, and the progress of other countries, given in the *Annales des Mines*, and *Annales des Travaux Publics*, would testify to the ability of these engineers, even were they wanting in the names of Dufreney, Elie de Beaumont, Regnault, Le Play, Gonot, Dumont, and Mueseher.

In giving a hasty sketch of the efforts which have been made to introduce mining education, the first place must be conceded to the Academy of Freiberg. Although lectures were given by Dr. Henckel, in his own house till 1744, the school was not founded till 1765. It attained its greatest celebrity in 1775, under the famous Werner. Pupils are to be found there from distant countries—Spain, Russia, and the Brazils. Some of the leading proprietors of mines and smelters in this country have taken advantage of the education it affords. The subjects are taught by lectures, illustrated by diagrams, by experiments, by models, and specimens. One day in the week is spent in the mines, coal, iron, tin, &c., of which there are 100 within three miles of Freiberg. Besides the higher classes, there is one for managers or captains, of whom the number is restricted to 40. The course consists of arithmetic, geometry, art of mining, elementary mineralogy, grammar, and drawing. For an account of the other celebrated schools of Tarnow, Schemnitz, and St. Etienne, and the experience to be derived from their past history, a pamphlet just published by Prof. W. Smyth should be referred to. The mining schools at Liege and Paris, established in 1810, to which I have already alluded, are of the highest scientific character. At Aals, in the department du Gard, a school for master miners, under the direction of M. Etienne Dupont, affords some useful suggestions for the class of mining schools which are chiefly required in this country. The director says:—“This school has an essentially practical object; the certificated pupils are workmen who can be formed into managers or master miners. Only workmen above the age of 16 years, who have worked in the mines for at least a year, are admitted. The attainments required for entering are—reading, writing, a running hand, the four first rules of arithmetic, and elementary notions respecting the systems of weights and measures. Mons. Dupont has handsomely offered to educate any mining schoolmaster who might be sent out to him, from England, at a very moderate rate.”

I have now, to return to mining education in England, and to acknowledge the high position held by the School of Mines in Jermyn-street, under the able presidency of Sir Henry De la Beche, and conducted by professors of the first talent. Although distant from the centres of mining operations, it has the advantages arising from the Geological Survey, from the fine museum which illustrates it, and from the laboratories and mining records. Field instruction is given in geology, mineralogy, and palaeontology. Useful as this institution at present is, as a centre for mining information, it may yet hold a still more distinguished position as the active supporter of the mining schools which are now being formed in the principal districts. An interesting account is given of its formation in a report made last year, by M. Coquelin, to the Belgian Government, on Industrial Education in England. He says:—“The School of Mines and of Science applied to the Arts, projected in 1839, was not inaugurated till 1851. Previously no institution existed in the United Kingdom where the different sciences, applied to the exploitation of mines, were taught. It is surprising that a country whose riches and prosperity are due, in a great measure, to mines from which minerals are produced amounting to the annual value of 24 millions sterling—i.e. to nearly 4-5ths of the whole produce of Europe—and from whose soil is extracted annually more than 35 million tons of coal alone, has not thought of furnishing to the numerous population occupied in working its mines the means of acquiring the most elementary scientific notions of their art. And yet the industry of which we speak is precisely that which can least do without scientific knowledge. The help of geology and chemistry is required to discover the formation, and determine the nature of a mineral; that of physics and mechanics for the exploitation, strictly speaking, of the mine; that of metallurgy to treat the metal when it is extracted from the earth. At every moment (and the instances are but too numerous in England) ignorance of science may not only occasion the death of miners, but the loss of immense capital, or, at least, deprive capitalists of the advantages which a more intelligent mode of working would have assured to them. Might it not be said that the English, to whom nature has been so generous, so prodigal, act somewhat in the same way as those southern nations to whom heaven has given warmth and food almost for nothing, and who had rather fold their arms in the face of these favours, than apply their intelligence and their strength in profiting by them? Indeed, all the countries of Europe, less gifted than England in respect of mineral riches, have established schools to compensate for their relatively unfavourable position by improvements in the system of working. That which creates the most surprise is, that the companies and proprietors of mines so rich, extensive, and numerous as they are in Great Britain, have not established schools from which they might themselves derive the greatest advantages. They had before them the example of the immortal Watt, who having obtained a patent for the ingenious improvements which he had introduced into the steam-engine, established at Soho, near Birmingham, a ‘preparatory school,’ in order to teach the workmen not only the new series of works which he was about to intrust to them, but the principles of the operations themselves—drawing, measuring, adjusting, &c. A single attempt has been made in Cornwall by Sir Charles Lemon. In 1838 he established, at his own cost, a school of mines, with the object of showing the importance of similar establishments. The school went on for two years, and Sir C. Lemon offered to the mining interest of the county of Cornwall a sum of 10,000/-, if on their side they would give a similar sum, to found a permanent school. Neither the county nor the mining interest responded to this appeal, and the school was given up. During the two years of its existence it afforded instruction to 17 young men, whose subsequent history has been ascertained. Almost all have arrived at superior positions, and occupy a recognised place in society. They are anxious to acknowledge that they owed their success to the school founded by Sir C. Lemon. What eloquent pleading in favour of professional education!”

Just as it is desirable to take the opinion which others entertain of us rather than our own, it is sometimes very useful to see if we can learn something from the opinion of an intelligent foreigner; and while the most desirable part of the education in our mining schools should be the imparting, with accurate details, all the best example of practice in our own land, I trust that those who have the direction of our future mining schools will not neglect to appropriate all that is advantageous in foreign mines.

As an example of an author's description of a mining process, such as we require, I refer with pleasure to a description of tubbing shafts, by a “Newcastle Collier,” in a recent number of the *Mining Journal*. It is too long for quotations. For descriptions of foreign mining, the works of Mons. Combes, and the *Annales* before mentioned, can be consulted with confidence. There are four institutions in Great Britain which must not be overlooked, but which, without including any very special instruction in mining, have furnished much valuable knowledge to those engaged in its pursuit. I mean the Universities of Dublin, Edinburgh, Durham, and London. The department of applied science was established at Durham in 1838, at King's College, by the exertions of three eminent professors, Moseley, Hall, and Daniel, in 1851. The two former gentlemen gave their services to Sir C. Lemon's school, and Canon Moseley, the inspector of training schools, is now actively engaged in forming schools of practical science, or, as they are called, “trade schools.” Another of Her Majesty's Inspectors, the Rev. J. P. Norris, has been instrumental in forming, on the suggestion of Mr. Tremere, five prize schools, in the mining districts of Staffordshire and Cheshire. Their object is to induce the parents of children (in districts where high wages offer powerful temptations) to keep them at school after ten years of age, and for a longer period than the average—15 months. Two conditions he finds to be essential:—1. That the prizes should not be attainable without positive effort on the part of the candidates.—2. That they should be of such kind as to make a lasting impression upon the child, and so large in amount as to carry with them, per force, a sense of increased responsibility.

At the Dudley examination, last year, there were 150 competitors, from 11 to 14 years of age. The prizes are provided by subscriptions amongst the proprietors of works. Although this is a successful method of improving elementary education, I think we may fairly expect that by offering instruction to boys or men, by which they

may attain a higher position and better wages, they will see more clearly the advantage of the elementary knowledge which they must acquire before entering a mining school.

Last May a meeting of the coal trade of Great Britain was held in London, at the request of a Committee of the House of Commons, at which the following resolutions were passed:—

Resolved:—“That it is the opinion of this meeting that a large number of accidents in collieries arise from the ignorance and recklessness of the miners themselves; and that increased education would greatly tend to decrease the number of accidents arising from such causes; • • • and in the opinion of this meeting, the owners of collieries should, in connection with the workmen, make such arrangements, in a financial point of view, as will accomplish this desirable object.” It was also further resolved:—“That this meeting is of opinion it would be of essential service, in the future management of mines, and consequently have a tendency towards the prevention of accidents, if a central mining school, or college of a practical nature, were established in some convenient and suitable colliery district, with branches therefrom and connected therewith, for the education of mining engineers and other officers or subordinate persons to be entrusted with the management and conducting of the mines of this country. And that the Committee now siting, on Accidents in Mines, be solicited to take this subject into their serious consideration, with a view of recommending to the Government to afford such aid as they may deem advisable and requisite to establish and support so necessary and laudable a measure.”

This was followed by a strong expression of opinion on the part of the committee.

“Your committee cannot too thoroughly recommend the establishment of similar institution in other districts, at which the branches of science bearing upon mining should be taught.”

“Facilities should thus be afforded for imparting to the superintendents or overseers, upon whom the daily and hourly conduct of the mines necessarily falls, an amount of scientific information which could not fail to induce greater vigilance in carrying out rules and precautions, obvious enough to scientific men, but which it is difficult, if not almost impossible, to have faithfully realized in practice by those who, however willing to do their duty, do not fully understand or appreciate the value of such rules and precautions. Your committee believe that the increased scientific information thus afforded to this class of men (the overseers) would prove an important step towards lessening the number of accidents in coal mines, and more especially those arising from defective arrangements of ventilation; and they would urge upon Government to foster, by grants in aid, the establishment and maintenance of mining schools in the large mining districts throughout the country.”

[To be concluded in next week's Mining Journal.]

QUARTZ REEFS IN AUSTRALIA.—From Sandhurst (Bendigo), a correspondent of the *Melbourne Express* (September 23) writes:—“Our quartz reefs are at length attracting general attention, and to those possess a moderate capital, and a good stock of patience, are very profitable. Most of the reefs that have been properly tried are still being worked, which is one of the surest signs of success.

Machinery, machinery, is the cry; and it would be a great boon to the diggers. If our colonial founders were to turn their attention to the immediate manufacture of an amalgamating and crushing machine, capable of grinding the quartz to a substance as fine as flour, treating about two tons per diem, and costing in Melbourne not more than £100. The sale for the above when once introduced on the several diggers would be immense and continuous, giving a great impulse to the trade of the different stores; it would be the means of employing at a good remunerations the unfortunate hard-up digger, and give an opportunity for the saving man to make a most profitable investment.

At a meeting held a short time since at the Miners' Hall, it was mentioned that a company possessing a Barden's machine would be enabled to crush for the diggers, but I understand Barden's apparatus is intended more for amalgamating the gold with the mercury than as a crushing power, the quartz not being placed in the basin until broken to cubes of an inch, or as some say, to a much smaller size. The peculiar action of the balls, owing to the obliquity of the basin's axis, is a continual attempt to ascend the curved incline with a twisting motion, rolling back again to the bottom by their gravity, thereby kneading the powder with the amalgam, on the same principle as dough is kneaded in the palms of the hands, the bottom of the balls being surrounded by mercury exposes the gold to its action the moment it is disintegrated from its matrix, the quartz.

In this neighbourhood, the gold is often found on the top or outside stones of the reef, then disappearing, but by sinking on the western side it again giddens the eye, about 8 feet from the surface. It usually lies in a succession of narrow veins of metamorphosed palaeozoic rock, extending about 10 in. in thickness, and for a depth unknown; these, in descending, are picked away, and they are those that are now paying the workers who crush with a simple hammer. The solid reef is also being worked by some Germans, and by a party of coloured men, who have, by aid of very primitive machinery, done exceedingly well, but neither have seem an idea of the infinitesimal portions into which gold is divided, they being satisfied with washing the crystallized silica, and passing it through mercury when broken into cubes of about the sixteenth part of an inch, instead of grinding it into an impalpable powder.

The reefs, of which there are hundreds, extend for miles, and it may be remarked that every flat or gully which has obtained any reputation for richness has been the reservoir, or drain for the water, descending from the quartz hills, bearing in its onward course the debris of the rock caused by atmospheric and other disintegrating agencies, and forming part of the perennial alluvial deposit resting on the original pipe or slate bottom; the cradlings always presenting a water-worn appearance.

The farmland Golden Square and Eagle Hawk are two of the richest pieces of ground ever opened, and the quartz now being worked on the side of the former, and at the head of the latter, are two of the best reefs yet tried.

From the foregoing, I conclude, that there is but little fear for the future of Bendigo, and that there is sufficient gold still remaining in our innumerable unworked reefs to employ thousands of men for ages, and to become as certain and great standard treasure to Victoria as the coal fields have been, and still are, to our mother country.”

CUNNINGHAM'S PATENT TOPSAILS.—One of the greatest difficulties in successfully manoeuvring a ship is the inability to secure promptitude in the oftentimes perils and always difficult operation of taking in reefs in the topsails. The difficulty is also as great, and the promptitude is also as urgent, in making sail. In cases of sudden lee shores, failure of the wind, suddenly coming under high lands, in entering harbours, and in various other situations, in which ships are constantly placed, the failure in obtaining the necessary power over the vessel in consequence of the inability precisely to handle these sails has involved the ruin of many a noble ship. Just when the captain had calculated his time to an hour to reach port, if a proof of peculiarly malignant nature were required to show the importance of this operation, the recent loss of the *Thistle*, on the Irish coast, would furnish it, as the breeze freshened at nine o'clock in the evening, the necessity of reducing and close reefing topsails became apparent; and yet, as the vessel was fitted with topsails on the old method, it was found impossible, although so much depended on the operation, to accomplish it successfully before 3 or 4 o'clock in the morning. All the time the ship had drifted so much to leeward that she was found to be so far under the cliff that she could not be again got out to sea. This catastrophe, as in many other instances, was mainly brought about by the inefficiency of the crew; and now that “recent legislation” has opened the way for the admission of such pretenders to the name of sailor, and emigration, and other causes have operated to thin the number of our thorough-bred tar, owners may well be fearful of trusting their vessels to such ill-assorted and incompetent crews. An excellent invention has been discovered to remove the chance of catastrophe from such causes as have been enumerated. Henry Cunningham, Esq., F.N.S.A., has perfected and patented an invention by which topsails, topgallant sails, and others, can be easily and speedily reefed from the deck, and that with so little outlay of manual labour that, in the case of a 500 ton ship, three hands have been found sufficient to reef a main-top sail in the short space of two minutes; and the reefs can be shaken out from the deck with the same facility. The captain of a barque which was fitted with these sails close reefed his main-top sail with the aid of one of his passengers; thus proving that there is no need that so many of the crew should be thorough sailors as hawksbills, and that the only seamanship now required for this operation is the ability to pull a rope. The original plan adopted by Mr. Cunningham is to impart a rotary motion to the yard during its descent upon the mast, while the sail is so constructed as to admit of being wound upon the yard during its descent. Thus the sail is reefed in its upper part, and the reef is taken in with great rapidity, and with the utmost ease. The yard of the vessel is not fitted immediately to the mast, but is mounted so as to turn freely in slings in bows and yardarm irons, which are carried on a shorter and lighter yard—called a chafing-spar, a little about. The yard, resting in a chain which passes round a notched wheel, in which notches the links of the chain set; thus, by means of communication to the deck, full command is given to the motions of the yard. Amongst the other advantages of the invention is one that carries its own recommendation: there is a small additional expense in the fitting in some cases, but the wear and tear of the sail is so much reduced, that 12 months more wear will be got out of it. The invention has already been largely adopted, and new vessels will for the future undergo a reef without being provided with this most important contrivance.—*Maidstone Journal*.

THE UNION TIN SMELTING COMPANY  
TO PETER STAINSBY, Esq., MANAGING DIRECTOR OF THE UNION TIN SMELTING COMPANY, SALVADOR HOUSE, BISHOPSGATE-STREET.

DEAR SIR,—I have called very frequently upon you to enquire into the affairs of this company, and particularly in reference to the debt due from Messrs. McEwen and Son, of Glasgow, who, on the 5th of September last, furnished account current, showing £180 due to the company, which, they then stated, they expected to receive the end of September, or some time in October; they also stated their willingness to remit £500 (five hundred pounds) immediately, if required, charging interest thereon. They had at that period about 7 tons of the consold, belonging to the company, independently of the foregoing balance of £480.

None of your clerks can give me any information of any letters written to these gentlemen, no copies of such being in the company's letter-book; neither do they know of any sum of money or bill received from them, and credit, except about seventy pounds (£70). Your co-directors are unable to furnish any information whatever: they state that they have for a long period pressed the collection of the company's debts upon you, and that they are extremely anxious to wind up the company's affairs, as resolved upon by the two special general meetings.

This unusual method of dealing with the company's affairs by the managing director induced me to write to Messrs. McEwen and Son, detailing the aforesaid facts, and requesting to be informed what sum of money or bills they had remitted up to the date of my letter, 7th November. They say, in reply, dated 9th November:—“We have been regularly remitting to Mr. Stainby all the money we have been receiving on account of the Union Tin Company.”

Now, it does appear, from the extract above, that they had been “regularly remitting,” from which expression I gather that more than £70 must have been received by you between the 6th September and the present date.

I am entitled, as a shareholder, to have an explicit answer as to what money Messrs. McEwen and Son have paid, and how their account stands; also, to see the bankers' book, and every letter and document of the company; and failing to obtain this information immediately, I shall publish the present letter to you, for the purpose of bringing about the wished-for object, and calling attention to the manner of conducting business at your office. I am, dear Sir, your obedient servant,

RICHARD BERRY.

PUBLIC CONVEYANCES.—TO CARRIAGE BUILDERS, INVENTORS, &c.

THE PUBLIC CARRIAGES OF GREAT BRITAIN being Glances at the Rise, Progress, Struggles, and Burdens of Internal Communications, with Suggestions for the Increase of Accommodation at Cross-roads, Railways Stations, and districts not supplied with steam transit. This book will be produced under the direct patronage of the Stage Carriage Trade, as to which Parliamentary enquiry is anticipated to take place next session, being, therefore, an important medium of publicity. Illustrated designs and descriptions of carriages will be inserted.—For terms, address Mr. BRADFIELD, 19, Strand, London.

### Stannaries of Cornwall.—In the Vice-Warden's Court.

In the CONSOLIDATED CAUSES of HAWKE v. TREELLAS, TREELLAS v. SAME, and BRAY AND ANOTHER v. SAME.

NOTICE IS HEREBY GIVEN, that, pursuant to THREE several ORDERS, or DECREES, made in these causes, and bearing date respectively the 13th day of November last, a PUBLIC AUCTION will be HELD at the GREAT DUCHY MINE, in the parish of Lansteglos by Camelot, within the said Stannaries, on Tuesday, the 10th day of December inst., at Ten o'clock in the forenoon, for SELLING, either together or in lots, the undermentioned MINING MACHINERY, MATERIALS, and OTHER EFFECTS:—viz., 1 10 inch PORTABLE CYLINDER ENGINE, complete; 15 fms. 9 in. pumps, including a working-barel, doorpost, windorse, rods, sealings, &c.; 24 fms. 1 in. chain; a new whm. 1 1/2 in. chain; a whm. rope; a smith's bellows, anvil, and vice; a bob, with sweep rod; ladders; launders; smiths and miners' tools; together with a quantity of other materials and effects in general use in mines. For viewing the same, application may be made to Mr. Morris, at the mine.

Dated Registrar's Office, Truro, Dec. 6, 1834.

### Stannaries of Cornwall.—In the Vice-Warden's Court.

PURSUANT TO THREE several ORDERS, or DECREES, made in the CONSOLIDATED CAUSES of HAWKE v. TREELLAS, TREELLAS v. SAME, and BRAY AND ANOTHER v. SAME, the CREDITORS in respect of the GREAT DUCHY MINE, in the parish of Lansteglos by Camelot, within the said Stannaries, are, on or before the 20th day of December last, to COME IN and PROVE THEIR DEBTS before the Registrar of the said Court, at his office in Truro, or in default thereof they will be summarily excluded the benefit of the said decree.

Dated Registrar's Office, Truro, Dec. 6, 1834.

### SALE OF MINE MACHINERY, MATERIALS, AND STORES BY AUCTION.

M. GUMMOE is favoured with instructions to SELL, BY AUCTION, at the ROCKS AND TREVERBYN UNITED MINES, near St. Austell, on Wednesday, the 13th Dec. inst., all the remaining MACHINERY, MATERIALS, AND STORES, consisting of an excellent 36 in. DOUBLE ACTING ROTARY ENGINE, of the largest construction, being erected new within the last four years, 9 1/2 ft. stroke, equal beam, with 15 tons of boilers, 24 tons of fly-wheels, and 60 heads of stamp, complete, wood and thatched sheds, bobbles, racks, drags, kieves, and a variety of dressing tools, 3 excellent large tare chases, powerful lifting jack, large beam and scales, small ditto weights, a lot of new round, square, and flat bar-iron, cast, boiler, and blister bars, nails from spikes to half-hatch, several dozen new building and other shovels, red and white lead, oil, pick and shovel hilt, safety fuse, old brass, old wrought and cast-iron, a lot of timber and other articles. Also, an excellent horse, cart, and harness, bridle and saddle, &c., and the account-house furniture, mining instruments, &c., comprising mahogany and deal desks, tables, chairs, and a variety of culinary requisites; mathematical instruments, theodolite complete, dial and quadrant, spirit level, parallel ruler, protractor, an excellent copying press, sampling weights and scales, end-scales, and sundry other things.

The sale will commence at Eleven o'clock precisely.

Dated Imperial Fire and Life Insurance Office, St. Austell, Nov. 29, 1834.

### AUGUSTA CONSOLS COPPER MINE, BRIDESTOWE, DEVONSHIRE, TOGETHER WITH THE MACHINERY, AND MATERIALS.

M. S. JAMES WHITE AND SON WILL SELL, BY AUCTION, at the Mart, opposite the Bank of England, on Thursday, the 12th December, 1834, at Twelve o'clock, in one Lot, without the slightest reservation, by order of the Committee of Management, in pursuance of a resolution of the shareholders, the LEASE or GRANT of the above MINING SETT, held for an unexpired term of 18 1/2 years, at a royalty of one-fifteenth, together with all the MACHINERY and MATERIALS, comprising a WATER-WHEEL, 40 ft. diameter 4 feet breast; 60 fms. of rods; 12 rod pulleys and stands; 2 bobs; 9 fms. of pump; 2 working-barrels; 2 doorposts; 2 windorse; 50 fms. 2 in. rope; 2 fms. 1 in. rope; 1 man-engine; 2 bobbles; wheelbarrows; launders; smiths' bellows; smiths and miners' tools; beam scales and weights; candles; powder; safety fuse, and numerous other items, being all the property on the mine. May be viewed, and particulars had of William Davyson, Esq., solicitor, 21, Ely-place, Holborn; of Mr. T. Fuller, 51, Threadneedle-street; at the Mart; and at the offices of JAMES WHITE and Son, Auctioneers and estate agents, 1, Union-court, Old Broad-street, City.

TO MECHANICAL ENGINEERS, MACHINISTS, TUBE MAKERS, MANUFACTURERS, LITHOGRAPHIC PRINTERS, MECHANICAL DRAUGHTSMEN, TOOL BROKERS, AND OTHERS.

### PEREMPTORY SALE at the TUBE WORKS, CAMBRIDGE ST., BIRMINGHAM.

M. S. JAMES CHESSHIRE AND GIBSON have received instructions from the representatives of the late Richard Prosser, Esq., C.E., to OFFER, BY AUCTION, on Tuesday, the 20th day of December next, and on the Tuesday and Wednesday in the following week, the very costly MACHINERY and TOOLS, and OTHER PROPERTY comprising a COMPOUND STEAM HYDRAULIC PRESS, the only one of its kind in existence, invented by the late Mr. Prosser, and capable of giving an instantaneous pressure of upwards of 90 tons; very massive tubular moulds and dies; drilling, lapping, notching, and shearing and slitting machines; DIAGONAL and DISC STEAM-ENGINES; tubular and other boilers; steam donkey, by Nasmyth; water and steam indicators; vacuum gauges; engine counters; super bright shafting, with their carriages and couplings; turned iron pulleys. EIGHTY SINGLE-SIDED PRESSES; quantity of button tools; cases of Whitworth's screw stocks and dies; and case of boring bits, by Shanks; smiths and other tools; turning cranes, &c.; LITHOGRAPHIC PRINTING PRESSES and MACHINES, by Messrs. Sharp, Roberts, and Co., and other makers; numbering machine; lithographic stones; four of type; costly mathematical, mechanical, and other instruments. Valuable WOOD PATTERNs, and expensive models; counterpoise and other fixtures; and a variety of miscellaneous property; the whole of which will be described in catalogues (1s. each), to be obtained 14 days prior to the sale at the offices of Mr. Thomas STANLEY, solicitor, 22, Temple-street, or of the Auctioneers, 11, Bennett's-hill, all of Birmingham, from whom also tickets to view (one week previous to the sale) may be obtained.

The sale will commence each morning at Eleven o'clock to the minute.

LEZANT, CORNWALL, NEAR GREASTON BRIDGE.

### STEAM-ENGINE, MINE MATERIALS, &c., FOR SALE.

M. R. DANIEL WARD, WILL SELL, BY PUBLIC AUCTION, on Wednesday, the 20th day of December last, at One o'clock in the afternoon, the following MINE MATERIALS, at WHEAL SOPHIA, in the parish of Lansteglos, near Greaston Bridge, Cornwall. A ten horse-power, HIGH PRESSURE ROTARY PUMPING STEAM-ENGINE, with fly wheel, and boiler complete (the above engine is well adapted for agricultural purposes). Inventory of materials:—

1 1/2 in. windorse; 1 1/2 in. doorpost; 1 1/2 in. working-pieces; 69 in. pumps: 1 7 in. windorse; 1 1/2 in. doorpost; 1 1/2 in. working-pieces; 6 1/2 in. pumps; 22 fms. of 4 in. house water lift of pump complete; 8 large cast-iron segments; 2 large bevel wheels; 1 large iron saddle; 2 cog wheels; 5 cast-iron rails; 1 large iron pulley; 6 small saddles; 2 wheels; 39 cast-iron rod pulleys; 35 1/2 in. wrought-iron rods; 1 2 1/2 in. ditto; 5 1/2 in. ditto; 2 1 1/2 in. square ditto; 3 1/2 in. round ditto; 2 1/2 in. ditto; 5 1/2 in. ditto; 1 1 1/2 in. square; 3 pieces with hoop; 1 33 in. smiths' bellows; screwing stock; smiths and miners' tools; lot of old scrap iron, grinding stone and frame, whm. cage, &c., new and old iron, 1 crab whm. 2 iron whm. kibbles, 2 whm. ditto; 2 chains, whm. rope, rods, stays, ladders, &c., cistern and launders, drum for drawing machine, frame, saddles and bearings, balance-bolt complete, poppet head and shear, main engine, account-house furniture. Also, at the same time will be SOLD, the SETT of the MINE.—For conditions of sale, and further particulars, apply either to the auctioneer, or WILLIAM MILLER, Esq., solicitor, 1 Raymond-building's Gray's Inn.

THE KENMARE MINES.—PRELIMINARY NOTICE.

M. S. JAMES CHESSHIRE, WINTERFLOOD, AND ELLIS WILL SELL, BY AUCTION, without reserve, at the Auction Mart, London, on Thursday, the 21st December last, the FREEHOLD of the above MINES, together with the LEASEHOLD RIGHTS, MACHINERY, and MATERIALS.

Particulars will, in due course, be prepared, and may be obtained at the auctioneers' offices, 18, Old Broad-street, London. The property can be viewed by application to CAPT. WALLACE, on the mines, near Kenmare, Ireland.—Dec. 6, 1834.

EAST CROWNDALE MINE.—TO BE SOLD, BY PRIVATE CONTRACT, a 56 in. PUMPING ENGINE, with boiler 10 tons, and tube for warmer 30 ft. long; water-wheel, almost new, 30 ft. by 3 ft. breast, cast-iron rings and sockets, with wrought-iron axle, with crusher and drawing machine, complete.

1 1/2 ft. 13 in. plunger-pole, with stuffing-box and gland.

5 matching-pieces, of different sizes.

1 1/2 ft. 12 in. plunger-pole, with stuffing-box and gland.

1 1/4 ft. 11 in. doorpost.

1 1/2 ft. 11 in. H-pieces.

1 1/2 ft. 10 in. doorpost.

1 1/2 ft. 14 in. doorpost.

1 1/2 ft. 15 in. pumps.

1 1/2 ft. 14 in. pams.

1 1/2 ft. 13 in. working-barrels.

1 1/2 ft. 10 in. working-barrel.

1 1/2 ft. 9 in. working-barrel.

1 1/2 ft. 13 in. plunger-case.

1 1/2 ft. 14 in. cast-iron doors.

1 1/2 ft. 13 in. cast-iron doors.

**MR. LEE STEVENS'S PATENT BURNERS.**—As the value of inventions can best be estimated by the successful patent of their application, Mr. LEE STEVENS avails himself of permission to refer to an important list of Engineers, Manufacturers, Brewers, Soap Makers, Chemists, Dyers, Printers, Confectioners, Bakers, and others, in proof of the practical utility of HIS SYSTEM OF SMOKE PREVENTION AND ECONOMY OF FUEL, adapted to all varieties of furnaces; and to which daily additions are made.

And strictly maintaining his own patent rights, he GUARANTEES his FURNACES against any pretensions on the part of others.

Copies of reports and testimonial with information respecting licenses to manufacture, &c., THE PATENT SMOKELESS FURNACES, may be obtained at the patentee's, 1, Fish-street-hill, City.

**SMOKELESS FURNACE, COMPLETE COMBUSTION, AND ECONOMY.**—The legislative enactment for the suppression of the smoke nuisance being now in operation, rendering it compulsory on the part of furnace proprietors to adopt the best means for its abolition, C. J. FOX calls the attention of the scientific public to his PLAN PATENTED by Messrs. ELMHILL and SIMPSON, of which he is the SOLE LICENSEE, as being THOROUGHLY EFFICACIOUS, causing a LARGE SAVING IN FUEL, and, as one of the most SIMPLE AND ECONOMICAL IN first cost yet offered to the public. It can be fixed in a period by no means exceeding a day, and without any disturbance to the furnace. Full particulars may be obtained of C. J. FOX, engineer, 4, Piccadilly-street, City-road, where testimonial of incomplete success may be seen.

**COLLEGE OF INDUSTRIAL SCIENCE, NEVILLE HALL, NEWCASTLE-ON-TYNE.**

ASSAY OFFICE AND LABORATORY under the DIRECTION of Dr. THOMAS RICHARDSON and Mr. E. J. G. BLOWELL, assisted by Mr. W. W. CHODREW.

The LABORATORIES are OPEN DAILY, from 9 A.M. to 5 P.M., where instruction is given in every branch of Assaying, Analytical Chemistry, and Chemical Research.

Fee for Twelve Months, £32 10s.

ANALYSES AND ASSAYS OF NATURAL AND MANUFACTURING PRODUCTS, such as Ores, Soils, Waters, Gases, Metals, Coals, Artificial Manures, Alkalies, &c., are made on moderate terms, and the commercial value estimated when required.

INVESTIGATIONS AND EXPERIMENTS FOR IMPROVING MANUFACTURING PROCESSES carried on in conjunction with the proprietors.

A COURSE OF ONE HUNDRED LECTURES on GENERAL CHEMISTRY delivered during the Winter Session at the College of Medicine in connection with the University of Durham, to which the laboratory students have free admission.

**THE LLANBERIS SLATE, AND GWYTHERN FLAG QUARRYING COMPANY, CARNARVONSHIRE AND DENBIGHSHIRE.**

Completely Registered, and in full work.—Capital £15,000 of £1 each.

BANKERS—Messrs. Williams and Co., Carnarvon.

Applications for further information, and for the remaining shares, may be made to Messrs. Williams, the bankers; or to Mr. JOHN LLOYD, county surveyor, Carnarvon, secretary and manager.

**CARBERY WEST MINING COMPANY OF IRELAND.**—At an ADJOURNED GENERAL MEETING of the shareholders and scripholders, held at the offices of the company, Adelaide Chambers, Gracechurch-street, on Wednesday, the 29th November, 1854.

It was unanimously resolved:—

That Messrs. Peter, Tindal, Foley, and Lucas, be appointed a committee to take charge of the deeds, scrip, furniture, and other property belonging to the company, and that all operations be suspended for the present; such committee to communicate together from time to time, with a view to the resuscitation of the mine at a future period.

By order, C. M. MANLEY, Sec.

Adelaide Chambers, Gracechurch-street, Nov. 30, 1854.

**WHEAL MESSER.**—At a MEETING of shareholders, held at 13, George-yard, Lombard-street, on Friday, the 1st December,

J. V. WATSON, Esq., in the chair.

The accounts, which were submitted, showed a balance of liabilities against the mine to the end of November, £2865 1s. 11d. A call of £5120, or £30 per (36th) share, was made, payable in 10 days, and a discount of 5 per cent. to be allowed to those who pay up within that time.

Capt. James Secombe was appointed joint manager with Capt. Polglase.

The following report of the committee was received, and entered on the minutes:—

REPORT OF THE COMMITTEE.

Dec. 1, 1854.—The committee in presenting their report of the present state, the general prospects, and the financial position of the mine, beg to remind the shareholders that at the last meeting, which was adjourned to this day, the manager, Mr. Williams, informed them there were four holes in the mine, which would be seen at deeper levels before the 1st of December; and if by that time they had not placed the mine in the position to justify all his reports upon it, he would at once resign the management.

Of these four points, one only has been seen; although the greatest exertions have been made to enter the holes before this meeting. Captain Polglase, who is present, will enter into any explanations required respecting these points; but, as they have had a material influence with the committee in framing their report, and in recommending for your consideration the future operations of the company, they beg, in order that you may understand the true position of your property, to refer to them here.

The first point was, the Messer hole in the 40 fathoms level. You are aware that down to the 30 fathoms hole had been very productive, having yielded the present company 900 tons of ore; and as our operations for several months had been, at great expense, sinking Michel's shaft to the 40 fathom level, it was one source of anxiety to see the hole opened up at this depth. This has been done, and, according to Capt. Polglase, there is now a promising hole in the end: whilst a wing being sunk from the 30 to the 40, several fathoms before the end, is yielding 2 to 3 tons per fathom, thus indicating we are driving towards a shoot of ore which was so productive above.

The second point was, the Trellof hole. This hole you were informed had been exceedingly rich in the adjoining mine, realising £20,000 worth of ore in a short time, and had been worked into the Messer set, where it was said to be standing, worth 1 ton of ore per fathom. To render this hole available to us, a level has been driving with all speed to communicate with the Trellof workings, but this has not yet been accomplished. Capt. Polglase states, however, that he expects the communication to be made every hour; and from all the committee can gather—seeing that this hole runs through Messer set, for a considerable distance—they have reason to think it will open to the company a fair, if not considerable, quantity of ore.

The third and fourth points were, cutting Williams north and south holes 10 fathoms below the adit. These have not yet been cut. These holes have been, and are still, productive at the adit level; and in the opinion of some shareholders who have inspected them, are the most promising in the mine.

In driving the adit level since the last meeting, a new hole, never before seen in the mine, has been discovered, and which Capt. Polglase thinks of good promise.

In regard to the financial department, it appears to the committee, that there has been great extravagance in the expenditure; yet they cannot but remind the shareholders that they possess a large and expensive plant, consisting of three steam-engines, and other necessities for a large and productive mine. The want of prudence and care, in not waiting the result of deeper levels in the mine before going to this extravagant outlay, is a matter which, however much it may be regretted, cannot now be remedied.

The greatest concern which has presented itself to the committee, and through which the financial position has become so deplorable, is the state of the mine at the time the large engine went to work. It was well known to all that large quantities of ore had been raised above the 30 fathom level, and statements were made by the manager and Capt. Wesley, that still larger returns, in fact, more than sufficient to meet the current expenditure, would be raised by the months of May and June. This proved to be false; all available ore ground had been taken away, and consequently, for many months the company's operations have been carried on at great expense, in sinking three shafts, &c., to discover and lay open ore-ground which they had been led to believe was standing in the mine at the time the works were started; last autumn; so that, instead of finding copper ore to meet current and unavoidable expenses calls, which otherwise would have cleared off all debts for machinery and supplies to the mine, have been barely sufficient to meet the costs of working during the last ten months.

The committee having thus endeavoured, from a thorough investigation of your affairs, to lay before you their true position, would further remark, that it is their opinion, from the present state of the mine, and the prospects of the holes, which may be seen at deeper levels before many days, that it is well worthy of a spirit, but economical working. By reducing the cost to £300 a month, or as near it as possible, the mine may be able at once to meet the greater part of the outlay, whilst, should the other holes turn out according to reasonable expectations, early profit may be made.

They would strongly recommend, therefore, that the mine should be placed in a proper and independent position, that every claim upon it should be at once paid off, and a balance kept in hand, that many of the materials may be purchased for cash, and at a cheaper rate. Capt. Polglase will inform you that an outlay of £150 for a crusher and tramroad in the mine, the returns can be increased and the expenses diminished. At the last meeting, the liabilities of the mine were £2543 14s. 10d.; since which month's cost (£375 17s. 3d.) has been paid; and assuming in addition that the next cost, not yet due, would amount to £500, the total of every liability on the mine to this day would be £3865 1s. 11d.

To place the mine, therefore, in the position which the committee recommend would require a call of £30 per share; and they propose that if made, a discount of 5 per cent. should be allowed to those who pay it within ten days. The staff of agents should be reduced, and a general manager appointed. The committee also strongly recommend that no manager or agent of the company be allowed, for the future, to hold a share in the mine. And that Mr. Boose be instructed to proceed in the Stannary Court against all those in arrear of calls.

Signed, R. F. LASCELLES JENNER, W. FAWCETT, J. EDWARDS, THOMAS CAMPBELL.

**NOTICE TO INVENTORS.—NEW PATENT LAW.**—PATENT OFFICE, 4, TRAFALGAR-SQUARE, CHARING CROSS.

The "CIRCULAR OF INFORMATION," and Plain Instructions for the Protection of Inventions in the United Kingdom or foreign countries, MAY BE HAD GRATIS by applying personally, or by letter (pre-paid), to Messrs. PRINCE and CO.

**NEW PATENT ACT, 1852.**—MR. CAMPIN, having advocated a Patent Law reform before the Government and Legislature, and in the pages of the Mining Journal, &c., is now READY TO ADVISE AND ASSIST INVENTORS in OBTAINING PATENTS, &c., under the NEW ACT.

The Circular of Information, gratis, on application to the Patent Office and Registry, 156, Strand.

**PRACTICAL MECHANICS' JOURNAL.**—Part 81, December.

Price 1s.—Illustrations: Large folio Plate of Messrs. Scott, Sinclair, and Co.'s New Screw Propellers, and 30 Wood Engravings.—Content: Royal Society; American Notes, by our own Correspondent; Boring Arbor; Steam Cook; Tool Block; Locomotive Performance; Railway Ventilation; Educational Exhibition, Report of Committee on Art; Davidson's Floating Breakwater; Messrs. Scott and Sinclair's New Screw Propellers; Illustrated Specifications of Recent Patents: Portable Wooden Bedsteads; Brown; Knife Cleaners, Hilliard; Railway Timber Truck, Easie; Centrifugal Cloth-Drying Machine, Johnson; Ornamentation of Pottery and Glass; Hale and Lucas; Medicinal Gas Administrator, Barth; Envelope, Aston; Washing Machine, Patterson; Steam Washer, Johnson;—Reviews of New Books; Proceedings of Societies; Monthly Notes; Lists of all New Patents;—Hebert, 28, Cheapside; Editor's Office (Offices for Patents), 47, Lincoln's Inn-fields.

**RAILWAY WAGONS.**—WM. A. ADAMS, MIDLAND WORKS, BIRMINGHAM. BROAD AND NARROW GAUGE COAL AND IRONSTONE WAGONS, IN STOCK—FOR SALE OR HIRE.

**GRiffin AND HENSON, RAILWAY CARRIAGE AND WAGON BUILDERS, SOHO, BIRMINGHAM.** MANUFACTURERS OF EVERY DESCRIPTION OF IRONWORK for RAILWAY CARRIAGES AND WAGONS.

**RAILWAY WHEEL AND AXLE WORKS.**—GEORGE WORDELL, AND CO., WARRINGTON, MANUFACTURERS OF EVERY DESCRIPTION OF HAMMERED IRON, TYRES, AXLES, &c.

**THOS. SPENCER, VULCAN IRONWORKS, WEST BROMWICH, STAFFORDSHIRE.** MANUFACTURERS OF RAILWAY WHEELS AND AXLES, SCRAP TYRES AND AXLES, ALL KINDS OF HAMMERED IRON FOR MARINE and other ENGINES, SHAFTS, and HEAVY IRONWORK.—SOLE MAKER of CAMBER'S PATENT WROUGHT-IRON RAILWAY WHEELS.

**CLECKHEATON IRONWORKS, YORKSHIRE.** JOHN TAYLOR, MANUFACTURER OF ALL KINDS OF FORGINGS for LOCOMOTIVE, MARINE, and OTHER ENGINES, HEAVY SHAFING, ARM MOULDS, and ALL OTHER COUNTRY FORGINGS.

**NORRIS'S PATENT RAILWAY CHAIR COMPANY** beg to draw the attention of railway companies and engineers to NORRIS'S PATENT RAILWAY JOINT CHAIRS. This patent has received the unqualified approbation of some of the most eminent engineers of the day, as the most effective, economical, and perfect joint in use at the present time. The simplicity of its construction is such as will allow of its application to any line of railway, without causing the slightest hindrance to the ordinary traffic during the time it is being laid down.

The saving in the preservation of the permanent way and rolling stock by the application of Norris's Patent is incalculable; and wherever adopted must very considerably decrease working expenses.

To railway companies, having old and bad roads, the principle is peculiarly appropriate, as its application will not only restore the road to a perfectly safe and serviceable state for many years, but, at the same time, bring into efficient use all the old and broken chairs.

To the railway world in general it is of the greatest value, as it admits of the easiest locomotion, and is most simple and economical in principle.

Every information will be given, and models forwarded for inspection, on application to the manager, at the offices of the company, Wolverhampton.

**TO ENGINEERS, MILLWRIGHTS, AND OTHERS.**—PETER ROTHWELL JACKSON'S MACHINE for MOULDING SPUR and OTHER WHEELS (without wheel patterns) is NOW AT WORK, and he can SUPPLY WHEEL CASTINGS of any diameter, pitch, number, breadth, or form of cog, on reasonable terms, WITHOUT ANY CHARGE FOR PATTERNS. This method of moulding produces wheels of a superior quality, and will be found very valuable when a change of speed is required, or to replace broken wheels with others of stronger proportions.

P. R. JACKSON also HOLDS A LICENSE to MANUFACTURE RAMSHOT TOM'S PATENT METALLIC PISTONS, which for lightness, cheapness, simplicity, and efficiency, he can with confidence recommend.

References to parties who have the patent wheels and pistons at work, and any other information as to prices, or licenses to manufacture them, may be had on application to the manager, at the Salford Rolling Mills, Manchester.

**PATENT SAFETY FUSE.**—The GREAT EXHIBITION PRIZE MEDAL was AWARDED to the MANUFACTURERS of the ORIGINAL SAFETY FUSE, BICKFORD, SMITH, DAVEY, and PRYOR, who beg to inform Merchants, Mine Agents, Railway Contractors, and all persons engaged in Blasting Operations, that, for the purpose of protecting the public in the use of a genuine article, the PATENT SAFETY FUSE has now a thread wrought into its centre, which is patent right, infallibly distinguishes it from all imitations, and ensures the continuity of the gunpowder.

This Fuse, protected by a Second Patent, is manufactured by greatly improved machinery, and may be had of any length and size, and adapted to every climate.

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**SAFETY FUSE.**—Messrs. WILLIAM BRUNTON and CO., PENHALICK, near REDRUTH, CORNWALL, MANUFACTURERS OF FUSE, of every size and length, as exhibited in the Great Exhibition of 1851, and supplied to the Royal Arsenal at Woolwich, the Arctic Expedition, and every part of the globe.

Messrs. BRUNTON & CO. are at all times PREPARED TO EXECUTE UNLIMITED ORDERS for SUPPLYING FUSE direct from their own MANUFACTORY, upon warrant that it will prove equal to, if not better, than any to be procured elsewhere.

**ORE CRUSHING.—CAUTION.**—I hereby CAUTION all persons MANUFACTURING, USING, and SENDING, without special license from me, MACHINES for the purpose of CRUSHING, FULVERIZING, and AMALGAMATING mineral and other substances, in which BALLS or SPHERES ARE USED IN CONNECTION WITH, OR MOVED BY, A REVOLVING PLATE OR PLATES, the same having been secured to me through, and in the name of, my agent, C. J. Wallis, under various modifications, by Her Majesty's Letters Patent for England and the Colonies, dated June and December, 1852. Signed, J. W. COCHRAN.

**NOTICE TO MINING COMPANIES AND RAILWAY DIRECTORS.**—The AIR-ENGINE TELEGRAPH is PATENTED. From all parts of a mine to and from the surface, INSTANTANEOUS SIGNALS are given by means of a cylinder and piston (3 inch diameter) attached to the steam-engine whistle or powerful bell, and worked at a mile, or unlimited distances, by similar cylinder placed at the end and intermediate parts of a 1/2-in. gauge percha conductor.

RAILWAY ENGINEERS unanimously admit, that by this powerful ENGINE TELEGRAPH each of the guards on a railway train may now work the steam-whistle, &c., INSTANTANEOUSLY, as readily as the driver. (See Parliamentary Report, June, 1854.) C. R. PALMER.

**STEAM STAMPS.**—5-horse power, complete, from £120 to £160.

**STEAM HAMMERS** of any size at a short notice, fitted with the newest improvements in regulation. The stamps are in full operation, each one crushing 30 tons per day.

**PORTABLE ENGINES and BOILERS,** complete, MOUNTED ON WHEELS, and of any power, for mining and other purposes, supplied at a few days' notice, under license from the patentees.

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**MINING ENGINES TO BE LET ON HIRE, OR FOR SALE** IMPORTANT TO ALL INTERESTED IN MINING PROPERTY.—Mining engines may be set to work without fixing, chimney, or engine-house, and the real value of the mine tried at a small cost, by the HIRE of MEDWIN and HALL'S PATENT PORTABLE PUMPING AND WINDING ENGINES. Are strong, simple, mounted on broad wagon wheels, horse shafts, to remove at pleasure. Several are ready for immediate delivery, either to be let at rental or purchase, of 10, 12, 15, to 40-horse power.—Apply to Messrs. MEDWIN and HALL, engineers, No. 92, Blackfriars-road, London, where terms and reports respecting the working of these engines for years may be obtained.

**PATENT IMPROVED WIRE ROPE WORKS, MILLWALL, POPLAR.**—A. J. HUTCHINGS, and CO., Sole Makers to the Lords of the Admiralty.—ROUND and FLAT ROPES, of every description, suitable for mining operations or other purposes. GALVANIZED or UNGALVANIZED, MANUFACTURED upon an IMPROVED PRINCIPLE, ensuring great pliability and durability. The superiority of these ropes over hempen ones, in point of strength, lightness, durability, and cost, is admitted by all who have tried them.

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**IMPROVED PATENT WIRE ROPE.**—MR. ANDREW SMITH, the ORIGINAL INVENTOR of WIRE ROPE, LIGHTNING CONDUCTORS, and SUBMARINE TELEGRAPHS, solicits the attention of the public to his IMPROVED PATENT MANUFACTURE, as the best and cheapest, having obtained his sixth patent since 1853.

Office, 69, Princes-street, Leicester-square, London.

**NOTICE AND CAUTION.—THE CHAMPION BRICK PRESSING MACHINE.**—THE BRICK PRESSING (OR MOULDING) MACHINES which have been made and sold under this name by Mr. W. C. S. PERCY and others have been proved an INFRINGEMENT upon CLAYTON'S PATENT. PUBLIC CAUTION is hereby given against any INFRINGEMENT of CLAYTON'S PATENT CLAY-SCREENING, TILE, PIPE, or BRICK MACHINERY.

[IN THE COURT OF EXCHEQUER.—CLAYTON v. PERCY.] The trial for infringement in this patent took place at the Guildhall, in the City of London, on Saturday, the 2d of July, before Lord Chief Baron Pollock and a special jury, when a verdict was recorded proving the infringement upon, and establishing Clayton's patent on every point and claim of his patent.

MR. CLAYTON, therefore, hereby CAUTIONS all persons against the MANUFACTURE, SALE, or USE of his SCREENING APPARATUS, for forcing clay through to cleanse it from stones or other extraneous matter, in the TILE, BRICK, or POTTERY MANUFACTURE, or any other portion of his patent, without his license, otherwise such persons will be liable to injunction to restrain the further manufacture, sale, or use thereof.—HENRY CLAYTON, sole patentee and manufacturer, Atlas Works, Upper Park-place, Dorset-square, London.

**CLAY PURIFICATION OF GAS.**—This process is APPROVED and ADOPTED by some of the most intelligent GAS ENGINEERS in the kingdom, and their opinions are fully borne out by the investigations of Dr. Letby and other scientific authorities. It will, no doubt, be employed in nearly every well managed gas-works; and will lead to an enlarged consumption of gas in private houses, from which it is now excluded by a fear of its impurity.—Terms of license, £2, may be obtained of Messrs. HOLMES, BROWN, Huddersfield, agents to the patentee. In use at the gas-works of Leeds, Preston, Huddersfield, Wakefield, West Riding County Gaol, &c.

**ASSAYING.—CITY SCHOOL OF CHEMISTRY AND ASSAY OFF**

## THE MINING SHARE LIST.

Shares.	Paid.	Last Price.	Present.	Dividends per Share.	Last Paid.
512000 Alfred Consols (copper), Philiack	5111.104	5184	174.18	512 7 0	50 5 Oct. 1854.
80000 Algood Consols slate Quarry	2	12	12	0 3 0	0 1 6 July 1854.
20000 Anglesea Coal Company	4	—	—	0 10 0	0 2 3 Nov. 1852.
1524 Balleswidden (tin), St. Just	114	54	—	12 5 0	0 5 9 Jan. 1854.
32000 Ball Holies, Worthen, Salop.	11.12.50	54	54 10	0 10 0	0 10 4 April 1853.
43000 Bedford United (copper), Tavistock	25	54	54 10	0 5 0	0 2 8 July 1853.
53990 Black Craig (lead), Kirkcudbrightshire	5	1	14	513 5 0	0 5 0 Oct. 1854.
31300 Bontalack (tin, copper), St. Just	914	350	—	0 5 0	0 5 0 June 1851.
10000 Bryntall, Llanidloes, Montgomeryshire	7	3	3X	—	—
18000 Carn Brea (copper, tin), Illogan	15	—	—	229 10 0	2 0 0 April 1854.
10000 Castle slate Quarry, Dolgellau	1	—	12	0 1 9	0 2 0 June 1854.
236 Conford (copper), Gwennap, Cornwall	75	13	—	52 0 0	2 0 0 June 1854.
256 Conduor (copper, tin), Camborne	29	105	—	40 0 0	2 0 0 May 1854.
123 Cwmystwyth (lead), Cardiganshire	60	185	—	—	—
1024 Devon Great Consols (copper), Tavistock	1	200	—	414 0 0	9 0 0 Nov. 1854.
12000 Dhuoro (copper), Ireland	1	—	1	0 3 0	0 1 8 Nov. 1853.
179 Dolcoath (copper, tin), Camborne	237.5	80	—	—	—
24500 Drake Walla (tin, copper), Calstock	12.50	2	—	0 6 6	0 1 8 April 1853.
350 East Darren (lead), Cardiganshire	32	80	—	8 0 0	4 0 0 Nov. 1854.
123 East Pool (tin, copper), Pool, Illogan	24.5	105	—	235 0 0	2 10 0 April 1854.
133 East Wheal Rose (silver-lead), Newlyn	56	—	—	3245 0 0	0 5 0 March 1852.
1024 East Wheal Margaret (tin, copper)	54	—	11X	0 5 0	0 5 0 Feb. 1854.
13000 Elyan Mining Company, Derbyshire	54	—	25X	4 3 4	0 10 0 Nov. 1854.
494 Fowey Consols (copper), Tavistock	40	30	—	309 12 0	1 10 0 Aug. 1850.
22400 Foxdale, Isle of Man	71.104.64	25	—	41 2 0	0 5 0 Oct. 1854.
320 Ditto (New Shares of 25L each)	20	—	—	3 4 0	0 16 0 Oct. 1854.
4448 General Mining Co. for Ireland (cop., lead)	24	2	—	—	—
20000 Goginan (lead), Cardiganshire, Wales	8	6	—	1 0 0	0 3 3 June 1853.
1024 Gonanessa (copper), St. Cleer	134	—	11X 12X	5 0 0	0 7 0 Dec. 1852.
30000 Great Crimis (copper), St. Austell	1	—	—	0 1 0	0 1 0 Sept. 1854.
13750 Great Polgoon (dis.), St. Austell	34	—	14	0 10 0	0 4 2 Oct. 1853.
119 Great Work (tin), Germoe	100	—	—	181 10 0	5 0 0 Nov. 1854.
1024 Herodsfoot (lead), near Liskeard	814	7	6	2 12 6	0 7 6 April 1854.
6000 Hington Down Consols (copper), Calstock	32	—	14	0 13 6	0 3 6 Nov. 1854.
6000 Hombush (lead, copper), Callington	23	8	—	25 0 0	— Feb. 1854.
2400 Holyford (copper), near Tiverton	11	—	—	3 5 0 0	0 5 0 Sept. 1852.
76 Jamaica (lead), Mold, Flintshire	35.13.62	—	—	380 0 0	0 5 0 March 1851.
2048 Kenneggy (copper), Breage	63.75	—	—	—	0 4 0 March 1854.
786 Kirkcudbrightshire (lead), Kirkcudbright	95	—	—	1 15 0	0 5 0 May 1854.
20000 Lackamore (copper), Tipperary, Ireland	1	—	—	0 1 0	0 1 0 July 1853.
30 Laxey Mining Company, Isle of Man	100	1000	—	1250 0 0	20 0 Aug. 1854.
5000 Lewis (tin, copper), St. Erth	31.58.	2	—	0 2 0	0 2 0 Aug. 1854.
167 Levant (copper, tin), St. Just	21	—	—	1042 0 0	2 0 0 Aug. 1854.
400 Lisburne (lead), Cardiganshire, Wales	134	175	—	218 15 0	2 10 0 Dec. 1854.
320 Machno Slate and Slab Company	25	—	—	1 17 6	1 5 0 June 1853.
160 Ditto (New Shares)	12.50	15	—	0 12 6	0 12 6 June 1853.
6000 Marke Vella (copper), Caradon	41.104.64	54	—	0 2 6	0 2 6 May 1853.
5000 Mendip Hills (lead), Somerset	33	—	—	0 10 0	0 10 0 May 1853.
8000 Merlin (lead), Flint	24	—	—	1 11 0	0 2 6 June 1853.
20000 Mining Co. of Ireland (copper, lead, coal)	7	104	—	9 12 6	0 10 6 July 1854.
4000 Nantlle Vale (slate), Llanllwynn	1	17	—	—	0 1 3 Nov. 1854.
— Ditto	45	—	—	—	—
47 Newstons Mining Company, Co. Down	50	—	—	29 0 0	2 0 0 Oct. 1854.
200 North Pool (copper, tin), Pool	235	—	125	322 0 0	4 0 0 Oct. 1854.
140 North Rosscar (copper), Camborne	19	—	—	249 10 0	4 0 0 Sept. 1853.
6200 North Wheal Bassett (copper, tin), Illogan	512	21%	20% 21	3 6 0	0 3 0 Nov. 1854.
6400 Par Consols (copper), St. Blazey	11	11	—	23 6 0	0 10 0 July 1853.
5000 Peal United (lead), North Derbyshire	7X	—	—	3 0 0	0 10 0 Dec. 1854.
180 Perran St. George (cop., tin), Perranzabuloe	21.5	—	—	1 15 0	0 10 0 Nov. 1853.
200 Phoenix (copper, tin), Linkinhorne	30	—	—	50 0 0	1 10 0 Nov. 1854.
1600 Polherro (tin), St. Agnes (Preferential)	15	—	—	5 0 0	1 0 0 Sept. 1854.
5000 Providence Mines (tin), Uny Lelant	204	23	—	22 19 6	1 0 0 Nov. 1854.
1948 Rix Hill (tin), Tavistock	34	—	—	0 8 0	0 4 0 Jan. 1853.
250 South Caradon (copper), St. Cleer	2.5	276	275 x d	342 0 0	5 0 0 Nov. 1854.
9000 South Tamar (silver-lead), Beaferris	11.62.62	7	8%	2 2 6	0 7 6 Sept. 1854.
250 South Tolgus (copper), Redruth, Cornwall	16	100	—	69 0 0	4 0 0 May 1853.
1245 South Wheal Frances (copper), Illogan	37%	250	—	260 5 0	6 0 0 Nov. 1854.
1024 Spears Consols (tin), St. Just, Cornwall	14	—	—	8 8 6	0 2 8 Dec. 1853.
1242 St. Asbyns Consols (tin), St. Ives	3	2	—	0 17 6	0 7 6 April 1852.
10000 Stray Park and Camborne Vein (copper)	105	—	—	0 10 0	0 10 0 Oct. 1850.
16000 Tamar Consols (silver-lead), Berraclon	45	—	—	4 11 0	2 0 0 Feb. 1853.
6500 Tincroft (copper, tin), near Pool, Illogan	7.5	—	—	6 18 6	0 10 0 Dec. 1853.
2418 Trehane (silver-lead), Menheniot	34	—	54	7 11 3	0 5 0 Nov. 1854.
5000 Treleigh Consols (copper), Redruth	6	—	—	1 3 0	0 5 0 Feb. 1854.
572 Trelyon Consols (tin), St. Ives	11.5	24	—	3 15 0	5 0 0 Sept. 1854.
96 Tresavean (copper), Gwennap, Cornwall	32.5	—	—	403 15 0	5 0 0 Sept. 1854.
129 Trehelan (copper), Gwennap, Cornwall	7.5	—	—	403 13 6	2 10 0 April 1851.
120 Trewickey and Barrier (copper), Gwennap	130	40	37%	368 10 0	4 0 0 March 1854.
4966 Trewetha (silver-lead), Menheniot, Cornwall	1%	24%	34%	0 13 0	0 3 0 June 1854.
100 Trumpet Consols (tin), near Helston	95	—	—	50 0 0	5 0 0 March 1854.
400 United Mines (copper), Gwennap	40	150	120 130	47 5 0	2 0 0 Feb. 1854.
1024 Wellington (copper, tin), Perranzabuloe	8%	—	—	2 2 6	0 5 0 March 1851.
5000 Welsh Potosi (silver-lead), Talybont, Card.	5	54	—	0 10 0	0 10 0 Aug. 1854.
30000 Ditto	3.5	45%	—	0 4 0	0 4 0 Aug. 1854.
6000 West Bassett (copper), Illogan	1.5	32	29% 30%	1 10 0	0 10 0 Nov. 1854.
256 West Caradon (copper), Liskeard	20	—	—	257 5 0	3 0 0 Oct. 1854.
256 West Damsel (copper), Gwennap	210.7	180	—	6 0 0	2 0 0 Nov. 1854.
1024 West Providence (tin), St. Erth	5	20	20 21	23 5 0	1 5 0 Nov. 1854.
1024 West Wheal Darlington	121.188	2	—	9 5 0	0 5 0 Dec. 1853.
200 West Wheal Seton (copper), Camborne	77	200	—	3 10 0	0 10 0 Oct. 1854.
12200 Wheal Arthur (copper), Calstock	7	31	23	2 0 0	2 0 0 Feb. 1853.
256 Wheal Bassett (copper), Illogan	10.5	600	530 540	20 0 0 Dec. 1854.	
256 Wheal Buller (copper), Redruth	5	650	570 590	31 1 5 0 Nov. 1854.	
256 Wheal Clifford (copper), Gwennap	—	200	190 210	2 13 8	2 5 6 March 1853.
5135 Wheal Exmouth and Adams United	41.148	115	—	1 4 8	0 2 0 Dec. 1854.
5000 Wheal Friendship (copper), Devon	—	—	—	3235 10 0	8 0 0 May 1854.
5000 Wheal Golden (silver-lead), Perranzabuloe	4.5	—	—	1 5 0	0 5 0 Sept. 1852.
6000 Wheal James (iron, copper), Roche	11.42.	—	—	6 2 0	0 2 0 May 1853.
512 Wheal Jane (silver-lead), Kew	5.5	—	—	4 10 0	1 0 0 Oct. 1853.
430 Wheal Jane (tin), Wendron	33	52	—	28 0 0	2 0 0 May 1854.
112 Wheal Margaret (tin), Uny Lelant	79	100	—	230 0 0	5 0 0 May 1854.
512 Wheal Mary Ann (lead), Menheniot	54	37	35	1 5 0	2 0 0 March 1854.
80 Wheal Owles, St. Just, Cornwall	70	390	—	165 13 0	5 0 0 Nov. 1854.
240 Wheal Penhall (tin), St. Just	107	250	—	40 10 0	8 0 0 Sept. 1852.
188 Wheal Seton (tin, copper), Camborne	107	250	—	354 10 0	8 0 0 April 1854.
520 Wheal Trelawny (silver-lead), Liskeard	8%	37	—	45 10 0	1 10 0 Oct. 1854.
520 Wheal Trelew (silver-lead), Llanllwynn	9%	5	34	10 2 6	0 7 6 Jan. 1854.
1024 Wicklow (copper), Wicklow	50	50	59	24 13 0	1 12 6 July 1854.
5000 Wicklow (copper), Wicklow					